

INDEX NUMBER

Archives of **PHYSICAL MEDICINE AND REHABILITATION**

(Formerly Archives of Physical Medicine)

Official Journal

*American Congress of Physical Medicine and Rehabilitation
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**American Congress of Physical Medicine
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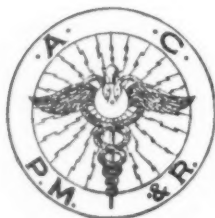
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Contents — Dec., 1954

Volume XXXV

No. 12

ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION

(Formerly Archives of Physical Medicine)

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ORIGINAL ARTICLES

- Physical Medicine and Rehabilitation in the Management of Hip Disabilities. Arthur L. Watkins, M.D. 747

- Industrial Aspects of Physical Medicine and Rehabilitation. Leonard J. Yamshon, M.D. 750

- Rehabilitation Program for Chronically Ill Elderly Patients in a Neuropsychiatric Hospital. Delilah Riemer, M.D. 754

- The Employability and Job-Seeking Behavior of the Physically Handicapped: Employers' Views. Everett H. Barton, Jr., M.A.; Arthur P. Coladarci, Ph.D., and Karl E. Carlson, M.D. 759

- A New Approach to the Treatment of Cervical Osteoarthritis With Radiculitis. Everill W. Fowls, M.D. 765

- Medical News. 773

- Book Reviews. 779

INDEX

- Volume XXXV, January-December, 1954,
Inclusive 791

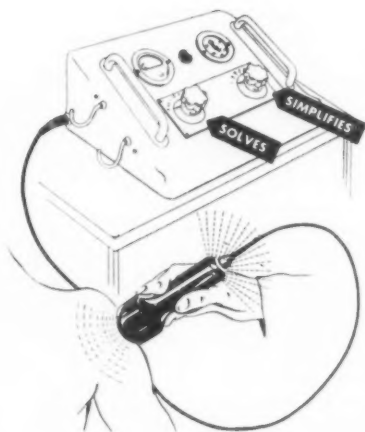
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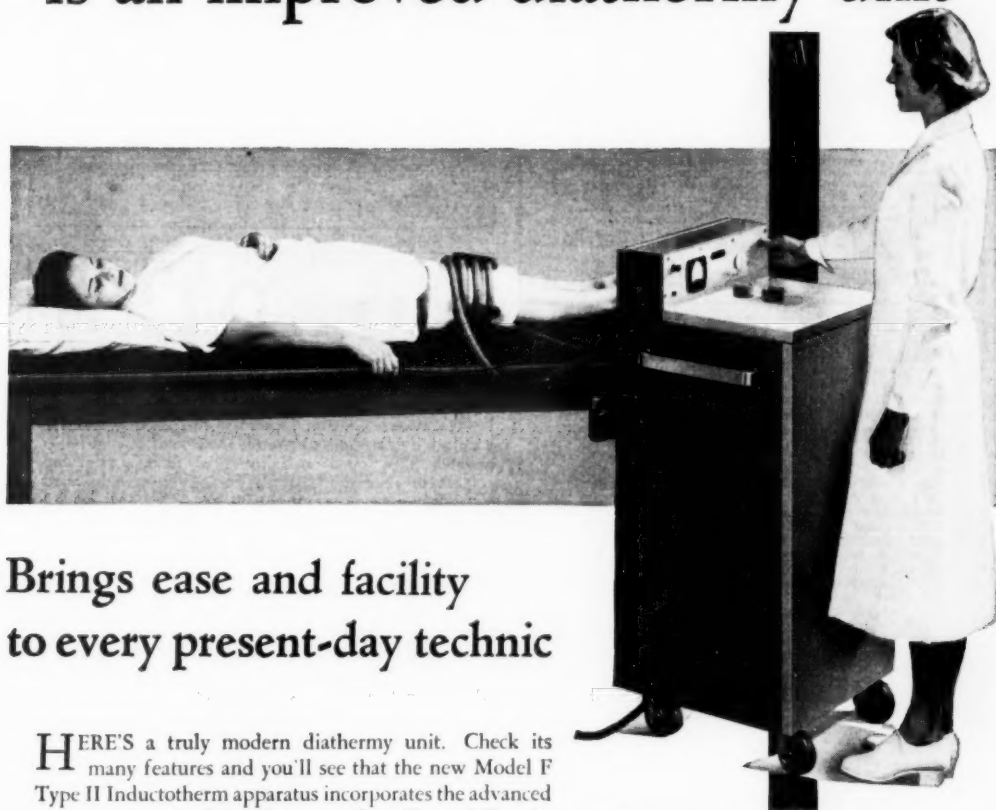
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on page

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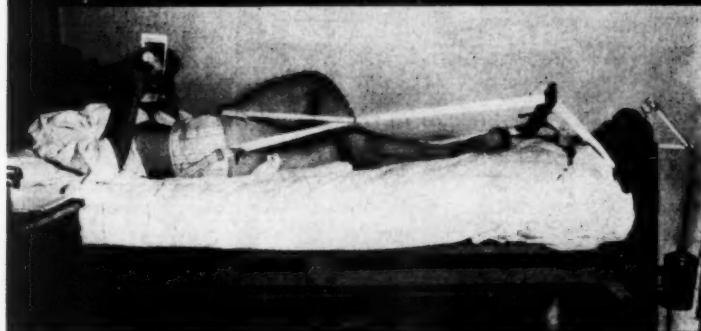
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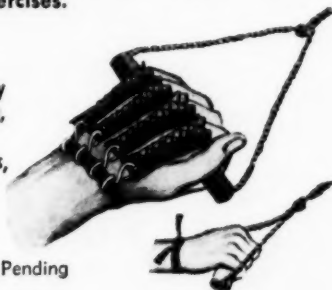
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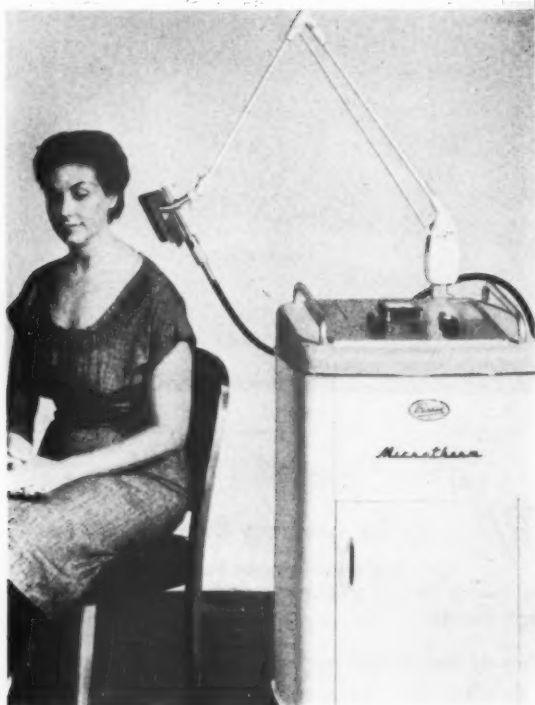
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Physical Medicine and Rehabilitation in the Management of Hip Disabilities

Arthur L. Watkins, M.D.
Boston

Disease or injury of the hip joint constitutes a major disability because of its importance in locomotion and weight bearing. It may also interfere with comfortable sitting and sleeping. Consequently, all methods of value in hastening rehabilitation of these people are of prime importance, and among these are the use of procedures in Physical Medicine.

Fractures

Fractures of the hip occur more frequently in the elderly and may constitute a major threat to life because of enforced bed rest. One of the aims in Physical Medicine is to counteract the ill effects of immobilization. An accepted form of treatment, in some types of hip fractures, is that of traction — particularly Russell's traction. For patients in such traction it is advisable to institute a program of bed exercises to maintain, as nearly as possible, the proper muscle tone of the unaffected muscles. The patient should be instructed in recumbent active exercises for the uninvolved leg, setting exercises for the abdominal and gluteal muscles, active exercises for the upper extremities and deep breathing. As soon as sufficient healing of the fracture has occurred, they may be started on assisted active exercises for the hip and knee in preparation for ambulation.

The time of ambulation is a vital point in their rehabilitation, and often a place where expert supervision is of utmost importance. This is particularly true in elderly patients who have some degree of arthritis or other disorder interfering with the normal function of the opposite extremity. Many of them have some arteriosclerosis and tendency to vertigo on assuming the upright position, hence need careful support and guidance on their first attempts at ambulation which is usually with crutches. They must be instructed carefully in the

use of crutches beginning with a three point gait and partial weight bearing. Usually it is preferable to allow them to bear the weight of the limb lightly, than to attempt to hold the foot up with non-weight bearing. The periods of guided crutch walking supervision have to be gauged according to the patient's general fatigue and in most instances should be carried through to instruction in stair climbing before they are discharged from the hospital or permitted to ambulate without guidance. The success of treatment of such fractures is often dependent on the correct instruction in the use of crutches. Without this supervision very often an improper amount of weight bearing may occur as well as falls and re-fractures.

Perhaps the majority of hip fractures receive some type of surgical treatment with internal fixation, either with a triflange nail or with plate and nail combination. The primary aim of surgical treatment in such cases is to make it possible to start early ambulation. The exact time when this is safe depends on the judgment of the surgeon and his faith in the security of his fixation together with assessment of the general condition of the patient. Here again, while patients are immobilized in bed only for a short time they should be given supervised exercises for the uninvolved extremities and then given careful instruction first, in the use of a walker and then with crutches. In addition to aiding safe ambulation, it is felt that these exercises also may have some beneficial effect in the prevention of phlebothrombosis.

Reconstructive Surgery

The success of major reconstructive

Read at the Eastern Section meeting of the American Congress of Physical Medicine and Rehabilitation, Newark, N.J., April 16, 1954.

Assistant Clinical Professor of Medicine, Harvard Medical School; Chief, Physical Medicine, Massachusetts General Hospital; Medical Director, Bay State Medical Rehabilitation Clinic, Boston.

surgery to the hip very often depends on the availability and use of proper methods of aftercare so that the patient learns to develop proper muscular control of the new hip joint. †

Vitallium Mold Arthroplasty

Although each case is to a large extent an individual problem, there are certain general rules which are worthy of note relative to proper aftercare. This type of surgical procedure is used in the more serious cases such as a fused hip where it is necessary to establish a new acetabulum as well as a new head, both of which have no cartilage present. Very often muscular and capsular contractions have been overcome surgically and time must be allowed for the healing of these soft tissues before active exercises can be considered. Consequently, such patients are frequently kept in traction in a certain degree of abduction from three to six weeks. The only physical therapeutic procedures during this period are exercises for uninvolved areas and muscle setting—particularly of the quadriceps and gluteal muscles. After this initial period of healing, bed exercises can be started with active motion. This includes flexion and extension while the leg is supported in suspension and also abduction exercises with the help of roller skates, while being careful to maintain neutral position of rotation. The patient usually needs some guidance in proper performance of these exercises in bed. In the uncomplicated case the patient may soon progress to crutch walking with minimal weight bearing and then requires supervision similar to that given the fracture cases. In some instances convalescence is hindered by muscle spasm and pain, especially in the presence of rheumatoid arthritis. For these patients, during this critical post-operative period, it may be very valuable to use the Hubbard tank for underwater exercises so that muscle spasm may be relieved and the continuation of motion made possible which is so important in establishing the formation of new joint surfaces.

After the patients are started on a

program of crutch walking they can also start sitting exercises. This includes rocking chair exercises which help to improve hip and knee musculature as well as range of motion. Stationary bicycle riding is also recommended. In these patients where new fibrocartilage has to be formed both in the acetabulum and over the head of the femur it usually requires about six months before very much weight bearing is allowed. It is important to see that patients maintain good walking habits without developing limps during this period when they are graduated from crutches to canes.

Although it is possible to re-create for these patients by surgery mechanically functioning joints which are remarkably good, many patients are unable to take advantage of this reconstructive surgery because of lack of proper muscular power. This may be due to the many years of immobilization from a fused hip or one with limited motion so that the muscles become atrophied and fibrosed. The success of the surgery, therefore, depends on how well the patient is able to regain his muscular power. Although repetitive exercises are very valuable in developing motion and perhaps also in re-creating proper gliding surfaces they are relatively ineffective in developing power of muscles. For this purpose one should consider properly graded resistive exercises. When the principle of progressive resistance exercises to develop power is employed, it is important that the technic of exercises be carefully carried out and that the patient be properly positioned for the exercise. For this reason special exercise tables have been developed which have been found to be effective in the aftercare of cup arthroplasty patients^{1,2}. It is possible to supply maximum resistance to help develop muscle power even for very weak muscles by proper positioning and the use of supports to eliminate the force of gravity, but still give the muscle maximum resistance. This is particularly important in the development of the abductor muscles. The extensor and flexor muscles may also be exercised us-

ing the same principle on the same table. Many of these patients have very weak quadriceps muscles and it is important to develop their power which may be done by means of the leg press or combined hip and knee extension exercises or simple knee extension exercises alone.

Moore Replacement Prosthesis

Reconstructive surgery of the hip utilizing a Moore prosthesis is becoming increasingly popular. For patients who have an uninjured acetabulum, as in trochanteric fractures, the period of immobilization may be relatively short. For example, during three weeks of bed rest recumbent exercises are allowed and then immediate instruction is given in the use of crutches with minimal weight bearing. Patients are then instructed in home exercises which can be done in the standing position with some elevation on the unaffected leg so that they are taught to do flexion, extension and abduction daily.

If it is necessary to re-create surgically a new acetabulum, the convalescence is necessarily delayed for the development of the new fibrocartilage in the acetabulum. The patient remains in bed for approximately six or eight weeks, and weight bearing is assumed only at a later date as with the Vitallium mold arthroplasty cases.

Degenerative Joint Disease

This disabling and often very painful condition is a major cause of disability in the aged. Physical Medicine treatment for these patients may include measures for help in relief of pain. This includes bed rest, traction, and at times local application of deep heat as with short wave diathermy. Medicinal treatment should also be used as indicated including aspirin, cortisone and intra-articular injection of cortone. Once some relief of pain has been obtained, the aim of physical therapy is then to preserve joint function as long as possible. This is done by means of systematic non-weight bearing exercises which the patient is taught to do at least once

daily, with about five repetitions per exercise. The progression of the process may be retarded by having the patient use canes or crutches and by weight reduction when needed.

Diathermy or other forms of thermotherapy are usually considered only as symptomatic in their effect and not curative.

Rheumatoid Arthritis of the Hip

Treatment of severe involvement of the hip with rheumatoid arthritis is one of the most difficult medical problems encountered. In such patients one usually must consider treatment of the disease process as a whole including bed rest, proper diet, medication as indicated for relief of pain, steroid therapy, and heat applied locally. Many of these patients make better progress if they are given underwater therapy in the Hubbard tank for relief of muscle spasm and pain in order to facilitate return of function through carefully supervised exercises. At times it is necessary to employ Russell's traction for relief of spasm. One of the most difficult problems to overcome is flexion contractures, particularly in younger individuals who have free mobility of the lumbar spine. In these cases, the position of lordosis will be assumed when trying to extend the hips, thus negating the benefit of the exercises. It is therefore necessary to do alternate hip extension exercises while maintaining the opposite hip in full flexion in order to maintain a flat lumbar spine and fix the pelvis. Although an occasional case may benefit by progressive resistance exercises to develop muscular power, these exercises are usually of more value in older cases with no signs of general activity of the disease. In such instances it may be very beneficial in the development of power in atrophied muscles. The addition of progressive resistance exercises, using techniques previously described, may bring very gratifying results in speeding ambulation and full activity. At the same time one must utilize whatever adaptations may be necessary as in crutch handles. Fre-

quently these older patients have multiple deformities and the care of the upper extremities must not be neglected when prescribing treatment for the hips.

Before considering that treatment has reached an end point in the case of hip disabilities one should evaluate patients in terms of their performance in activities of daily living. Each of these problems should be carefully evaluated and instruction given before the patient is discharged as having received maximum benefit. Very often the occupational therapist may assist in these problems. The occupational therapist may be helpful in evaluating home situations or conditions at work which may be met by minor adjustments such as heights of chairs and stools. In those individuals with joint involvement special assis-

tance may be given in the use of adapted tools or mechanical aids.

Summary

In disease and injury of the hip joint proper management of the patient should include the utilization of known effective measures of Physical Medicine and Rehabilitation. These have been outlined for patients with fractures, reconstructive surgery, degenerative joint disease and rheumatoid arthritis.

References

1. DeLorme, T. L., and Watkins, A. L.: Progressive Resistance Exercises in Cup Arthroplasties of the Hip. *Arch. Phys. Med.* 30:367 (June) 1949.
2. DeLorme, T. L., and Watkins, A. L.: Progressive Resistance Exercise, New York, Appleton-Century-Crofts, Inc., 1951, p. 245.

Industrial Aspects of Physical Medicine and Rehabilitation

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Because of wide experience in the problems of industrial accidents, the physiatrist is in an excellent position to cooperate in the treatment of traumatic disabilities with particular emphasis on the reduction of a disability. His participation and training in the large rehabilitation centers with their coordinating medical, surgical, psychiatric, social and vocational services for the severely disabled, as well as his special training in the procedures of physical restoration, gives him an excellent understanding in the treatment of problems of the less severely disabled.

Industry has a multitude of injuries which do not require the total facilities of a large rehabilitation center. To achieve minimal disability the injured workman may require a more specialized type of physical treatment. Those concerned with traumatic disabilities realize that valuable time can be saved; irreversible tissue changes can be prevented, and the degree of perma-

nent disability can be reduced if an extensive program of physical restoration is introduced without delay. The physiatrist will be called upon to cooperate with industrial and orthopedic surgeons in the treatment of industrial accidents. This paper presents some of the problems of those directly affected in an industrial accident. An attempt is made to provide the physiatrist with some background material enabling him to understand more thoroughly the problems and management of industrial injuries.

Disability Classifications

Temporary Partial Disability: The individual is capable of full or part-time employment. There may be an interference with normal function, but not sufficient to interfere with the individual's ability to earn a livelihood. This interval is limited to the period of time during which the disability is being reduced and has not become permanent.

Temporary Total Disability: The individual is not capable of gainful employment. This is limited to a given period of time devoted to recovery.

Permanent Disability: The disability is permanent and will not be enhanced by further treatment.

Total Permanent Disability: The individual is permanently disabled even though maximum medical care has been completed.

In disabling injuries, the physician must recognize three major factors in addition to the pathology of trauma and other physiological problems. They are 1) the injured individual and his complex psycho-socio-economic factors; 2) the employer, and 3) the insurance carrier.

Each factor has a definite influence on the recovery of the individual and his return to gainful employment.

Effects of Injury

On the Injured: A disability which prohibits gainful employment creates an economic problem. If temporary total disability persists, economic chaos is magnified. This is true despite the fact that the injured may be a recipient of Workmen's Compensation benefits. Unless the injured has no responsibilities or another member of the family shoulders the financial burden, there frequently occurs a reduction of resources and an accompanying loss of psychological security. Occasionally, it is possible for the individual to continue in his work. Certain jobs such as office assistants, foremen, or positions of administrative or semi-administrative capacity do not prohibit the injured from being active in these fields. In other instances the employer may be able to provide work within the physical capacities of the injured person. These opportunities are not always available and at times the individual's employment may be terminated. The employer may refuse re-employment if it is thought that the worker is an accident hazard. If employment must be secured on competitive basis, emotional factors may be increased by feelings of insecurity.

Certain conditions may prevent an employee from returning to his previous occupation. For example, a fractured hip in a steel construction worker may prevent climbing activities. This presents a serious threat to his security. Without knowledge of and ability in other fields, he may be forced to accept a new and much different occupation. He may resent the change because of personal pride, lower income, or because he may feel he is too old to establish himself in a new field.

The injured individual then may face a serious situation. Added to his physical disability are superimposed emotional factors. These undoubtedly influence the subjective complaints. They may even influence the physical findings because of the anxiety tension states created. There must be some reaction to this situation. If he is an emotionally stable individual, he may make a satisfactory adjustment. He will then be primarily concerned with the reduction of his disability and return to some form of employment which will effectively utilize his remaining capabilities. On the other hand, what will happen to the individual who is unable to make adjustment? He may react with feelings of open hostility toward his former employer, the doctors, the insurance company, and even to society. A latent psychoneurosis may become evident. This is apt to be particularly true when an unconfirmed diagnosis is suggested.

In any event, an accident has occurred—someone or something must be responsible for it. He may fail or refuse to realize his own contribution to the accident. (Safety engineers claim ninety-five per cent of accidents are based on human failure and only five per cent on equipment failures.) A sense of futility may arise. He may doubt his ability to assume the role of a wage earner once again. This can result in his contentment to depend on compensation benefits for his livelihood even though standards of living are lowered. All attempts to alter this status may be resisted. He may feel that the only solution to the problem is settlement thereby resisting

efforts to improve his condition and reduce his disability. He may fail to realize that the amount of money he receives for a given injury through Workmen's Compensation benefits is fixed by law, and his disability if untreated will result in a reduced earning capacity when he does return to work. He will most likely be overlooked in a competitive labor market.

On the Employer: Every employer has an investment in his personnel. It takes time, money, and patience to train people to perform efficiently. A new job is strange even to an experienced individual because methods of operation and management differ. A disabled employee means distributing his work load to others who may not be familiar with the job requirements. This results in wasted effort and perhaps, in costly errors as well. When the injured employee does return to work he may operate at a reduced efficiency. This depends on the length of his absence, demands of the job, and the nature of the disability. There are times when the employer is unable to hold open a job indefinitely. Competitive factors often prohibit retaining extra personnel as substitutes for absent employees.

The employer is subject to insurance rate increases when his loss ratio becomes too high. He may even find it difficult to obtain insurance.

On the Insurance Carrier: It should be clearly understood that an insurance company operates on an estimated percentage of profit for dividends and must pay costs of administration. Workmen's Compensation rates are based upon experienced loss ratios. The insurer has a definite responsibility and obligation to the insured. The outstanding problem in many cases is to establish this responsibility, and, once that is done, the extent of liability must be determined.

There are times when an insurance carrier is unaware of an accident for a period of several months because the employer or attending physician neglects to report the accident. It is only natural that the insurance carrier will investigate the claim before assuming liability.

The insurance company depends upon the reports of the attending physician to determine the status of the injured. The factors of disability stated in the medical reports are used as a guide to set up reserves for the estimated length of disability, for permanent disability, and for costs. It is on the basis of this information or lack of information in these reports that the insurance carrier may request consultation for further medical opinion and advice.

The following essentials will facilitate the proper handling of an injured individual:

Accurate diagnosis should be made. A possible diagnosis complicates the case. An outstanding example is the back strain which is diagnosed as a "possible disc." When a herniated disc is suspected it should first be ruled out and not diagnosed as such unless it is substantiated.

An effort should be made to estimate length of disability. It is unwise to minimize a disability. If a man is disabled longer than one or two months, it is better to so state, rather than estimating a shorter period of time with resulting requests for extension.

An adequate description of the disability is important.

Consultation should be used freely.

Standardized methods of measurements recommended by the Industrial Accident Commission should be employed.

Careful evaluation of subjective complaints should be noted.

If a permanent condition is not likely to be benefited by further treatment, a rating should then be recommended.

The factors involved in disability rating are 1) amputation; 2) deformity (shortening); 3) ankylosis or limited motion (instability—atrophy); 4) anesthesia (paresthesia—subjective symptoms); and, 5) loss of function.

Disability compensation is fixed by

law. The amount paid depends upon the degree of disability as well as the age and occupation of the individual at the time of the injury. For example, if a highly skilled craftsman were employed as a laborer at the time of accident his rating would be based on that of a laborer. The rating is increased with the age of the individual for obvious reasons.

It is assumed that the more severe physical problems will be examined. Included will be older patients in the cataclysmic phase of life, patients with severe multiple injuries, and those who have failed to improve under ordinary incomplete methods of treatment after a considerable period of time.

The attitude and cooperation of the patient is a major factor. If the individual is overly concerned about himself, if he is primarily interested in a settlement or other litigation, and if there are interfering sociological problems, the results of treatment will be affected. Lack of cooperation may incorporate several factors such as lack of funds for and/or transportation to the treatment center; or because of various personal reasons, such as taking care of children

while the mate is forced to seek employment. The injured may have other accident insurance coverage. His total tax-free disability income then may be almost as great as that earned prior to his mishap, making him indifferent to the speed of his recovery.

Conclusion

Physical Medicine and Rehabilitation in the treatment of the industrially injured is an essential and specialized treatment service. Its use has definite benefits. To the injured it will mean reduced disability and greater potential earning capacity. To the employer it will mean retention of experienced personnel performing with greater efficiency, and decreased insurance rates. To the insurance company it will mean savings in dollars.

The physiatrist plays an increasingly important role in the problems of industrial accidents. It is essential that the physiatrist has an understanding of the numerous ramifications affecting the injured individual and others concerned. This will enable him to cooperate in bringing about a maximum reduction of disability in the shortest possible time.

IMPORTANT ANNOUNCEMENT

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION

The next examinations for the American Board of Physical Medicine and Rehabilitation will be held in Philadelphia, June 5 and 6, 1955. The final date for filing applications is March 1, 1955. Applications for eligibility to the examinations should be mailed to the Secretary, Dr. Earl C. Elkins, 30 N. Michigan Ave., Chicago 2.

Rehabilitation Program for Chronically Ill Elderly Patients in a Neuropsychiatric Hospital

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Introduction

The elderly chronically ill patients in a mental hospital are generally numbered among those in whom a *cure* is least likely to occur. They comprise a markedly *institutionalized* group. Personnel and patients alike are usually resigned to the fact that custodial care is all that can be offered. In recent years, however, there has been some attention given to the possible rehabilitation of the aged.

Clow¹ pointed out that patients suffering from mental illness of a functional nature are more likely to improve if they have adequate incentive to do so. If the patient has good resources in the way of interests, a certain amount of security, and a favorable family situation, he is more likely to get well and remain well. Krusen² noted that we must "develop hospital practice and medical programs which not only will continue to add years to life but also add life to years."

The effectiveness of games, for example, in bringing about the fullest patient participation has been studied in some detail³. Wood and Hyde⁴, in an investigation of the effectiveness of ward occupational therapy, compared various therapeutic tones in terms of ability to interest patients, and described the therapist method of approach on various occasions. It was found that an effective occupational therapy program using a variety of games and crafts could be carried out on the wards.

The Medical-Surgical Service at Bedford (Mass.) VA Hospital has several wards for elderly patients who have developed some chronic physical ailment which requires close medical supervision. On one of these wards a program which incorporated many of the foregoing rec-

ommendations was developed. It is, in effect, a pilot study to determine the effectiveness of an intensive activities program in increasing the activity and improving the adjustment to the hospital environment of these patients. The basic plan for the present program calls for a long-term effort which will be evaluated periodically. This paper is a report of a six-month evaluation.

The Program

The Patients: The ward in which the study is being carried out consists of fifty elderly ambulatory, male patients who for the most part have some physical disability. Their ages range from fifty to eighty years with the exception of one patient twenty-five years of age. All have been hospitalized from five to twenty years, except one patient who has been in the hospital for one year. Most of the patients on this ward have been described as psychiatrically *burnt-out* and have become *institutionalized* to a very marked degree. The various diagnoses of the patients are shown in table 1.

The Old Ward Atmosphere: Six months ago the patients sat for most of the day, usually asleep, or if awake, with heads bowed. Occasionally, a few would read books or newspapers. They sat in chairs lined against the wall. There were tables at which some of the patients occasionally played cards. The radio was on but it appeared that little attention was given to it. All the patients were dressed and looked presentable. The ward in general was clean and tidy. Because of its location, the ward has very little sunshine and overhead lights were constantly necessary.

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Table 1: The Diagnostic Status of Patients on Ward 2-C

DIAGNOSIS	NO. OF DXS (NP) OF PNTS. ON GENERAL POP. OF WARD 2-C	NO. OF NP DXS IN 9 PNTS. SELECTED AT RANDOM AS SAMPLE
Schizophrenic Reaction	Paranoid 11) Hebephrenic 4) 26 Catatonic 6) Simple 5)	Paranoid 1) Hebephrenic 1) 4 Catatonic 1) Simple 1)
Syphilis, tertiary meningoencephalitic	8	2
Psychosis w/cerebral arteriosclerosis	5	0
Psychosis w/epileptic deterioration	2	1
Alcoholism:— Psychosis Intox. Korsakoff	3)	
Chronic alcoholism with psychotic reaction	8 5)	2
Evolutional Psychosis	1	0
TOTALS	50	9

The personnel took excellent care of the physical well-being of the patients and tried their best to understand them. The aides were in charge of clothing and the linen room. Some patients helped with these chores which were not time consuming. It was the same daily routine. The nurse had her regular duties which were also somewhat routine and monotonous. The patients' schedule consisted of going to the auditorium for entertainment once or twice a week, as well as to Occupational Therapy clinics where they continued to sit—but in another place. This is said to be a familiar picture in many psychiatric hospitals.

Program Goals

The purpose of the present study is to determine objectively the effect of an intensive program of rehabilitation. Rehabilitation may be considered as an attempt to make the patient happier in his hospital environment. From the geriatric point of view, it allows the elderly patient to become a more useful hospital citizen, in accordance with the philosophy that a person with a purpose in life is a happier one. In addition, effort is being made to restore the patients' interest in matters outside the immediate hospital environment by encouraging families and friends to renew the patients' contact with extra-hospital

realities. To measure the effectiveness of our program, objective and precise instructions and studies seemed necessary. These are being carried out by the efforts of psychiatrist, psychologist, social worker, and occupational therapist. Every department in the hospital is participating as members of a team to further the rehabilitation of the patients on this ward.

Although the rehabilitation project is concerned with the entire population on the ward, a sample of ten patients was randomly selected for intensive study since practical difficulties of assessing changes in fifty patients are obvious. The initial baseline and periodic evaluations of these patients are established by the following methods: 1) Direct observations, e.g., rating scales, nurses' notes, psychiatric aide reports, etc.; 2) psychiatric examinations; 3) psychological appraisal, and 4) social service studies. In addition, there are ward staff conferences in which the progress of one or more of the patients is discussed by all the personnel involved in this project. This intensive analysis will be discussed in greater detail.

In addition to the personnel from the ward and the different people representing professional services, the volunteers play an important role. The Director of Volunteer Activities assigned as many volunteers as possible to the ward. These

people aid in Occupational Therapy work and in recreational activities, which include walks on the hospital grounds or to the canteen, playing games and attending ward parties. The Recreational Department of Special Services has been very helpful in this program. On two separate occasions they arranged ward parties at a State Park, at which time some patients swam for the first time in more than ten years. They planned ward parties and a Harvest Party just before Halloween. The Engineering Department contributed by installing electrical outlets in the walls for standing floor lamps, giving the day room a "club-room atmosphere." The Dietetic Service cooperated on several occasions for ward parties. The occupational therapist came to the ward two hours per week to help supervise the work being done, to make suggestions and to bring additional supplies. She made an evaluation of the ward and patient activities reported in table 2.

The nurses and aides have shown initiative in introducing practical and useful projects such as tooth-brush sanding, cleaning silver, or making a plastic box for the medicine cards. The nurse plays an important role in encouraging and supervising the aides, who in turn, stimulate the patients to carry out various activities such as painting, sanding of blocks, forming plastic objects, working with wool and felt or clay. The aides encourage and join with the patients in playing games, preparing for holidays by making ward decorations, and taking part in ward parties.

An average of twenty patients participate in Occupational Therapy work, while ten to twelve patients continue to do ward work. There are three or four patients who do not have the inclination for games or crafts and prefer to do errands or take notes which may be necessary during the activities. Others read books or prefer to go off the ward and enjoy their privileges on the hospi-

Table 2: Changes Noted in a Nine Patient Sample at End of First Six Months of Intensive Activity Program on Ward 2-C

Patient	Psychiatric Interview	Evaluation of Nurse	Aide	Psychological Testing	Social Family-Patient Relationship	Service Patient's Attitude	Occupational Therapy Socialization	Activity	Quality
S.B.	0	0	0	0	0	0	+	0	0
R.C.	0	+	0	+	0	0	(always friendly)	0	0
T.C.	0	0	0	0	+	+	+	0	0
E.C.	0	0	0	+	+	0	+	+	+
M.D.	0	+	+	±	0	0	0	0	0
J.H.	0	0	0	0	0	0	+	0	0
J.M.	0	0	0	+	+	+	+	0	0
F.O.	0	+	0	mute; impossible to test	+	0	+	+	+
H.S.	0	0	+	0	+	0	+	+	0

0 = No change
+ = Positive change
± = Equivocal

As the program continues, there are ward staff meetings of the charge nurse, aides, student nurses and ward secretary.

The number of aides, incidentally, has not been increased during this study. There are periodic meetings with the psychiatrist, psychologist, occupational therapist, and the ward personnel to discuss progress and any new ideas which may be used to stimulate the patients.

tal grounds. A spot check during one morning revealed that a group of twenty-five were in the oval playing games, ten were watching television, one was reading, two were writing letters, two were doing ward work, and ten were enjoying their off-the-ward privileges.

The activities in the program are at kindergarten level because the patients

had been inactive both mentally and physically for a long time. However, the activities have a purpose such as making gifts for sick children, thereby lending a more adult attitude to an elementary skill. The patients have made dogs of wool or felt; cut out and pasted pictures from magazines for picture books; stuffed felt animals, and prepared painted wooden blocks for the children of a local pediatric clinic. In addition to doing for others, they make articles used as ward decorations. Their efforts included vases, scarves for the TV set and other tables on the ward, plastic brackets and raffia covered cans to serve as planters which now hang from posts in the day room. Flower boxes on the porch contain geraniums and petunias.

The environment of the ward has become somewhat like that of a club-room. In the TV corner patients may gather to view the programs which interest them. Television has been used not as a substitute for other activities but as an additional activity. The patients stay up later to watch the boxing matches and baseball games. They followed the election campaign and speeches. Programs are selected by majority rule. A record of preferred programs included *Gangbusters*, *Big Town*, *Racket Squad*, *Chance of a Lifetime*, *I Love Lucy*, *Life with Luigi*, all the western programs, the fights, and the baseball games in season. These are among the fifteen most popular programs in Boston as determined by a national rating group.

Six months ago the patients had to be urged to read a newspaper. At present, many of them ask for reading material. They show an interest in the people coming into the ward and on occasion have been noted to talk to one another or gather in groups. A project accomplishment bulletin board, which is changed weekly or bi-monthly, has a demonstration of various articles made by the patients as well as "chit chat notes" which the secretary, acting as roving reporter, records.

A recent addition to ward activity is a library group. A Library Volunteer

comes to the ward weekly for one hour and either reads or discusses magazine articles. The Library Service visits the ward periodically to bring new books. The librarian reports that there are a few patients who are constant readers. Another innovation is a psychotherapy group which is conducted by a psychiatric resident and meets twice weekly with the ward physician acting as observer. This group consists of ten regularly attending patients who have brought out some interesting details of ward administration.

Intensive Analysis of Nine Randomly Selected Patients

Special intensive study is being given to a randomly selected group to assess more accurately the effects of our program. When the program began, ten patients were chosen for this study, but one was transferred from the ward. The results of the evaluations of the nine remaining patients are indicated in table 2 and can be summarized as follows: The Social Service Worker visited the families of each patient in addition to patient interviews. He learned that of the nine families, two continue to make regular visits, as they had done before the program began; five families who had not previously done so, visited during the six month interval in response to the social worker's suggestion; one wife was persuaded to send part of her husband's disability funds for his use, and two families showed no response at all.

Only one patient displayed sufficient interest to visit continually the social worker for assistance in going home for a few days. Another patient was encouraged to use his privileges, which he did not have six months ago, and now spends most of his time outside the ward. The other patients showed no change in attitude from the social service point of view.

The psychiatrist interviewed the patient six months ago and again very recently. He found that the stimulation from the program has been effective in that it has changed the ward atmosphere. This is exemplified by a sense of

increased animation in place of the dull and sluggish surroundings so well known on the ward in the past. However, he did not find a great deal of change to be discernible in the individual patients. They are still extremely autistic, manneristic and withdrawn. Many of them continue to show a disinterest in what goes on around them when left to themselves. In conversation with them, he noted that tension and anxiety continue to torment them, and that their outlook on life remains quite distorted.

The occupational therapist noted that during the six month period, seven out of the nine patients showed some positive change either in socialization, acceptance of activity or quality of workmanship. There was a marked change in attitude in the ward as a whole.

The psychologist used three tests: Rorschach, Wechsler-Bellevue and Phrase Association. These were done before and after the six month period, and were evaluated independently. Any changes had to be reflected in all tests before it was decided that a positive change had taken place. Analysis of the findings revealed the following: Three of the nine patients in the sample showed evidence in all the test procedures of positive changes in the direction of a reduction in the number of signs of deterioration. Intellectual functioning was more efficient and the range of personality expression appeared greater. Attitudes toward ward activities were more wholesome. One patient showed a striking change in attitude toward the examiner when seen the second time. Though he continued to reject all tests, his manner in doing so was "obviously less anxious and hostile." The remaining five patients showed no essential change of any kind. They continue to evidence marked infantilism, dependency, and inadequacy.

It was suggested by the psychologist that the positive changes reflected in tests derive from an improvement in the patients' attitude toward the tests and examiners, rather than from any basic improvement in their condition.

Summary

An intensive rehabilitation program was conducted on a ward of fifty chronically ill, psychiatrically *burnt-out*, elderly patients, by the ward personnel and all the auxiliary services of the hospital.

It was found that the ward atmosphere changed in a six month period from that of a usual mental hospital dayroom to that of a clubroom.

The patients on the ward in general showed more interest in their environment and in each other after the six month period.

It is significant that the entire program was instituted without any additional ward personnel by stimulating the present personnel to enlarge the scope of their patient interest.

An intensive study of a nine patient sample to determine the influence of this intensive rehabilitation program during the last six months, revealed that: (a) Social service stimulation of family-patient relationship increased the interest of five families; two families who had previously shown interest, continued to do so, and two families remained disinterested; (b) social service observation of patients' attitudes showed a marked change in one patient and a somewhat lesser change in another. The other patients showed no change; (c) there were no discernible changes noted by the psychiatrist, although he thought the program effective in that it changed the ward atmosphere to one of increased animation; (d) the occupational therapist noticed that during the six month period, seven out of the nine patients showed positive change either in socialization, acceptance of activity, or quality of workmanship. There was a marked change in attitude in the ward as a whole, and (e) psychological evaluation revealed that three patients showed positive changes, one showed equivocal change, four showed no change, in three separate tests—the Rorschach, Phrase Association Interview, and Wechsler-Bellevue. One patient was mute and could not be tested.

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References

1. Clow, Hollis E.: Psychiatric Factors in the Rehabilitation of the Aged. *Ment. Hyg.* 34:592 (Oct.) 1950.
2. Krusen, Frank H.: Treating "The Whole Man." *Hospitals* 27:59 (Jan.) 1953.
3. Hyde, Robert W.; York, Richard, and Wood, Anna C.: Effectiveness of Games in a Mental Hospital. *Occup. Therapy* 27:304 (Aug.) 1948.
4. Wood, Anna C., and Hyde, Robert W.: Studies of Technique and Effectiveness of Ward Occupational Therapy. *Am. J. Occup. Therapy* 2:149 (June) 1948.
5. Riemer, M.D.: Study of Mental Status of Schizophrenics Hospitalized Over 25 Years in Their Senium. *Psychiat. Quart.* 24:309 (April) 1950.
6. Hyde, Robert, and York, Richard: A Technique for Investigating Interpersonal Relationships in a Mental Hospital. *J. Abnorm. & Social Psychol.* 43:3 (July) 1948.

The Employability and Job-Seeking Behavior of the Physically Handicapped: Employers' Views

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A rather widespread resistance to employing physically handicapped workers seems to be reasonably certain¹ and, if it is correct that one in every seven of the male working population is disabled to the point of needing "special assistance",² the problem of the employment of the physically handicapped is an urgent one and needs current as well as continuous clarification and study.

At least one of the focal difficulties is suggested by the fact that employers and employers' agents tend to hold pessimistic outlooks, and presumably empirically derived negative beliefs concerning the potential job-success of handicapped applicants.³ It would appear that the position of the physically handicapped person would be considerably improved if he were informed about the expectations of the employer-interviewer regarding the interview situation and the type of information and knowledge the interviewer is seeking during the interview period and in any written documents presented by and/or in behalf of the physically handicapped applicant. It is not unreasonable to suppose that an

experienced employer-interviewer can make some suggestions to the handicapped job seeker regarding ways in which the applicant can "put his best foot forward." Furthermore, and perhaps more crucially, the employer-interviewer can be presumed to have questions he *would like* to ask the handicapped applicant and yet withholds these, depriving himself of needed information, because of their sensitive nature. If known to and anticipated by the applicant, these latter questions could more easily be raised or their answers volunteered.

With the foregoing in mind, three questions were formulated and addressed to a sample of employers:

1. If you were advising a physically handicapped person who was seeking employment, what suggestions would you offer that would help him gain the serious and favorable attention of possible employers?
2. When assessing the employability of a physically handicapped applicant, what information and knowledge do you **particularly** want to have?
3. If you have additional comments or criticisms regarding the employment problem of the physically handicapped, will you please note them for us?

These questions, with a summary of

the background of the problem of the employability of the physically handicapped, were sent to two hundred names selected at random from a recent issue of *Western Personnel Management and Industrial Relations Directory*. Fifty-eight (29%) responses were received. This percentage of returns is low, but not surprisingly so inasmuch as the response task was a rather time-consuming one. Two of the fifty-eight responses were not used since they appeared to have been based on a misinterpretation of the task. The respondents represent both large and small organizations and agencies in manufacturing, distribution, transportation, public utilities, insurance, retail selling, and civil service.

All responses were carefully examined to determine usable categories for the reactions to each of the three questions.

Table 1 summarizes the responses to the first of our three questions.

It is at once apparent that a major portion of the advice and suggestions made by the responding employers in response to the first question could easily apply to the non-handicapped job-seeker's approach to employment and employers. Table 1 reads like many lists of recommendations found in "How to Get a Job" books. This observation does not, of course, gainsay the importance of the suggestions. Nearly all these suggestions can be found among Novis' "Job Readiness Objectives in Rehabilitation".

The key that will open the door to employment for handicapped and non-handicapped alike seems to be careful planning and preparation. "Don't knock at my door and just say I need a job, can you help me?" advise employers. The job applicant must have something to offer; he must be able to "sell" himself. As one respondent put it:

Table 1: Analysis of Responses to Question 1: If You Were Advising a Physically Handicapped Person Who Was Seeking Employment, What Suggestions Would You Offer That Would Help Him Gain the Serious and Favorable Attention of Possible Employers?

Response Category	Per cent of employers making this response (N 56)
Preparation for the Employment Interview	
1. Be able to emphasize abilities for specific jobs; identify job or jobs qualified to handle	28
2. Analyze talents and capabilities carefully, and recognize limitations	25
3. List organizations where type of work desired can be found; knew something about the organization before applying for a job	12
4. Get recommendations and references from reliable individual, sponsoring organization or former employer	11
5. Match physical demands of job with physical capacity	9
6. Contact State Department of Vocational Rehabilitation or other special placement service for advice and counsel	7
7. Plan and prepare carefully for the interview	7
8. Identify specific vocational goals	5
9. Take all steps to reduce physical or employment handicap, i.e., artificial limbs, braces, hearing aids, and special schooling, training, rehabilitation classes	5
10. Pretest skill or ability to insure competency on the job	5
11. Obtain counseling and vocational testing	5
12. Be neat and well groomed	5
13. Write or phone for a personal interview	4
Behavior and Attitudes in the Employment Interview	
1. Be honest and frank in discussing abilities and disabilities; do not attempt to conceal any deficiencies or limitations	28
2. Show sincere self confidence in ability	21
3. Do not seek or appeal to pity, charity, or sympathy	20
4. Show willingness and desire to work without special privileges and considerations and to carry full share of work	18
5. Emphasize abilities not disability; be positive in approach	16
6. Good salesmanship is required; must "sell" himself and his abilities	14
7. Show desire and determination to make good and do the job and become a full, loyal member of the company	12
8. Be cheerful and enthusiastic; show "spunk"	9
9. Don't force yourself and be at ease; appear and act like an applicant who has no physical handicap	9
10. Be willing to accept any job that you can do	5

The handicapped person seeking employment is, like any other job applicant, faced with the need for good salesmanship. Good salesmanship first requires a sound product, thoroughly understood by the salesman, and then a carefully planned, intelligent presentation . . .

The good salesman knows his customer; the successful job seeker knows his employer's needs. The same employer warns the handicapped applicant that "if he applies as one merely wishing a job, his handicap will be his most obvious feature."

What should the job-seeker offer a prospective employer? He should offer definite abilities and skills for specific jobs or openings. To do this, he must carefully analyze his abilities, aptitudes, interests, personality traits, and experience; matching these with information about employers' needs and specific job demands. To save needless disappointment and rejection, the handicapped job-seeker should make special effort to investigate the physical, educational, and skill requirements of the work performed in an organization before applying for a job. Speaking of this problem, a responding employer remarks:

All too often we find physically handicapped people who, when turned down for employment by a company, feel resentment because they think they have been discriminated against. The truth of the matter is that in many of those cases the applicant was not qualified on other grounds, i.e., education, training, personality, etc. The moral is this: Just as Don Quixote gained painful experience tilting against windmills, we find that every day thousands of people, regardless of physical make-up, are turned down for employment in industry because they do not meet specific job requirements. The handicapped worker should take credence of this fact and choose his field accordingly.

Employers express a sensitivity to any appeal to sympathy, pity, or charity on the part of the handicapped person or special placement officer. Two such expressions from responding employers follow:

A handicapped person should not approach an interviewer asking for sympathy or with an attitude of "the country owes me a job." It should not be necessary to say this but we are faced with this attitude far more often than we like.

Placement officers seem to have one characteristic in common, which, while suiting the purpose proves irritating to me as an individual. Too often their attitude is that employers should hire these physically handicapped persons as a service to the community, as an assumption of their fair share of social welfare workload or any number of similar pleas which play upon sympathy and charity.

Employers look favorably upon the applicant who shows confidence in his ability, who emphasizes his ability rather than his disability, who desires to do his full share of work, who shows a determination to make good, and who reveals a cheerful disposition. Speaking of this matter of self confidence, an employer writes:

Until he (the disabled applicant) has real confidence in his ability to perform the job for which he is applying, he should not enter the employment market. . . . The general attitude is that if the man does not believe in himself sufficiently to impress others, why should they (employment officials) go out of their way to convince themselves of his ability.

The responding employers also caution the handicapped applicant not to attempt to conceal any deficiencies or limitations. These employers urge the handicapped interviewee to be honest and frank about his strengths and weaknesses. In advising the handicapped job-seeker, another employer suggests that

. . . he be honest and frank in talking about his handicaps and not try to "cover up" or misinform his potential employer for even though he may be accepted by giving false information or "covering up," sooner or later he will be discovered and will probably be released, and in addition do serious harm to other handicapped people looking for employment.

Table 2 summarizes the responses to our second question.

What information and knowledge do employers *particularly* want to have from the physically handicapped applicant? Table 2 shows that employers are particularly interested in knowing the nature and degree of the applicant's disability. They want to know what the handicapped applicant can and cannot do physically. They would like to see a medical report indicating the cause, treatment, duration, and prognosis of the disability. And they especially want to know what special accident hazards threaten this particular disabled worker and those who work with or around him. A specific concern with accident proneness was indicated by one employer. He remarked:

We want to know how he became disabled and we want a history of accidents that he may have had, both before and after he became disabled. In other words, we want to establish whether or not he is accident prone. If he is accident prone, it will definitely affect our placement of him.

Table 2: Analysis of Responses to Question 2: When Assessing the Employability of a Physically Handicapped Applicant, What Information and Knowledge Do You Particularly Want to Have?

Response Category	Per cent of employers making this response (N 56)
Physical Factors	
1. Degree of disability: what are physical limitations and abilities?	34
2. Medical information desired; particularly the following:	
a. complete medical history and report	21
b. diagnosis; nature of disability	11
c. cause of disability	5
d. duration of disability	4
3. Is there a special accident hazard involved for the disabled worker on the job?	14
4. Is there an accident hazard for fellow workers?	5
5. Will job aggravate disability?	4
Personality and Attitude Factors	
1. What is mental attitude toward life, handicap, job, employer: does attitude demand special supervision? Will worker adjust emotionally to work environment?	25
2. Will his personality be acceptable to fellow employees? Will he "fit"?	11
Other Non-physical Factors	
1. What specialized training has he had?	16
2. Does he have skill and ability necessary for job?	14
3. Work record and experience	11
4. Knowledge of job	7
5. Education	5
6. Mental capacity; intelligence	4
7. "Same information as from non-disabled applicant"	7

Besides physical factors, the responding employers expressed particular interest in the handicapped applicant's attitudes and personality. The employer

looks for unfavorable attitudes and personality characteristics in appraising the employability of any applicant, but he feels that these factors have special im-

Table 3: Analysis of Responses to Question 3: If You Have Additional Comments or Criticisms Regarding the Employment Problem of the Physically Handicapped, Will You Please Note Them For Us?

Response Category	Per cent of employers making this response (N 56)
Employer's Report on Own Experience and Policies	
1. Favorable experience with handicapped workers	40
2. Wide and extensive use of handicapped workers reported	18
3. Very limited opportunities in the reporting company because of the nature of their work	18
4. Special effort to employ own employees disabled on job or returning disabled veterans formerly employed	9
5. No definite policy concerning the hiring of the handicapped	5
6. Lack of cooperation and acceptance of responsibility on part of the handicapped in working out placement problems	5
7. Same treatment given the handicapped as the non-handicapped worker in terms of pay, etc.	4
8. Do not employ as many workers as once did or anticipate hiring less	4
Employers in General and Industry as a Whole	
1. If man can do the job, physical handicap is unimportant	16
2. Workmen's Compensation laws and high liability for disabled worker's injuries seen as discouraging employment of the handicapped	14
3. Employers willing and happy to employ disabled if they qualify and circumstances permit	12
4. Special advantages in hiring the handicapped e.g., low turn-over, low absenteeism	7
5. In skilled and technical work, physical handicap less important	5
6. Must have versatile employee, especially in smaller plants; disabled a problem here	5
7. Greater employer understanding and cooperation on whole problem needed	5
8. Basic employment problem of handicapped not much different from that of non-handicapped, just different emphasis given to certain selection factors	5
9. More analysis and examination of jobs with handicapped in mind needed; modification of jobs often possible and needed	4
Labor and Labor Unions	
1. Seniority regulations of labor contracts keep handicapped out of jobs they could otherwise handle	9
2. Labor not behind efforts to hire the handicapped	4

portance in assessing the handicapped applicant. Quoting one employer:

In trying to discover the employability of a physically handicapped applicant, the thing I particularly look for is a healthy mental attitude that would indicate a reasonable insurance of proper adjustment as I feel that most physically handicapped people are regarded more by a poor mental outlook than any actual inability to perform physically.

Table 3 summarizes the responses to our third question.

Many of the employers (40%) volunteered the comment that they have had or are having favorable experiences with handicapped workers. Inferences based on this percentage concerning the experience of industry and business as a whole must be made with caution, for the employers responding to the questionnaire possibly represent those who have had more favorable experiences or hold a more favorable attitude toward hiring the handicapped than the general population of employers. However, this number of volunteered favorable testimonials is encouraging.

The same percentage of employers report wide and extensive use of handicapped workers as those reporting very limited opportunities in their organization. If this picture represents the general employment field, the handicapped job seeker can be counseled that for every organization that could not possibly use him there is another that can employ him in a number of capacities. Again, the handicapped job-seeker must survey the field and identify those organizations which employ numbers of handicapped workers or could do so because of the nature of their work. If he can perform the work and possesses an appropriate skill, many employers will consider his disability unimportant. The employer says he has a job to do, and any job applicant who can help him do the job will interest him.

Several employers (5%) show some knowledge of job performance studies when they mention such things as the low turnover rate and low absenteeism record of the handicapped workers, thus making the handicapped desirable employees. If only five per cent of employers know these performance data,

it follows that employers need to be educated more effectively in what handicapped workers have done and can do.

As is stated in the literature on the employment problem of the handicapped, employers express concern over workmen's compensation laws and the high liability for the disabled worker's second injury. These employers perceive insurance considerations as discouraging to the employment of the handicapped. Here is what several employers had to say on the matter:

Many companies have Voluntary Disability Insurance and would hesitate to employ certain people for fear that they will immediately become disabled and draw from the reserve. If it were possible for the state to develop a type of "Assigned Risk" insurance as in the case of certain types of automobile insurance I believe more firms would employ personnel that they now find it necessary to discourage.

Unfortunately, railroads (other industries also) in recent years face almost prohibitive risks when they employ physically handicapped persons. The records are full of cases where people with known physical handicaps have been injured on the job, and even though their physical handicap enters into the injury little if any regard is given it by the courts or accident commissions.

... when a physically handicapped person applies for employment a full medical history should be furnished the employer. Our reasoning for this requirement is the present trend in the State of California toward giving excessive workmen's compensation benefits to employees who had prior history of physical disabilities. Until this trend is reversed, it is our feeling that employers, in order to protect themselves, must require a complete and adequate statement from the prospective employee when considering physically handicapped individuals.

The most serious obstacle to the placement of the physically handicapped lies in the operation of the Workmen's Compensation Law. While several studies have shown the accident frequency rate lower among physically handicapped employees, employers are nevertheless subject to heavy costs if it is found (and it usually is) that a disability has been aggravated by work. Under these conditions employers are understandably reluctant to undertake the risk involved in employing persons with certain types of disabilities.

These employers, all in California, seem unaware of the 1949 Amendment to the California State Workmen's Compensation Act which pertains to this second injury problem. Paul Scharrenberg, Director of California State Industrial Relations Department, contributes the following information about this amendment:

In order to encourage the hiring of disabled persons, the California Department of Industrial Relations in 1949 sponsored an amendment to the Workmen's Compensation Act which was designed to eliminate any apprehension on the part of an employer who hired handicapped persons as to any increased accident liability resulting from a subsequent injury. The Subsequent Injuries Fund which was established at that time

provides for full compensation to a disabled worker who suffers a subsequent injury which increases the extent of his disability. At the same time the employer is liable only to the extent of the second injury as if it had been the sole injury.

The need for employer education is evident.

Seniority regulations of labor contracts also discourage many employers from hiring the physically handicapped. Under seniority provisions of most labor contracts, an opening for some job higher than common labor must always be given to the person in the lower position who has the most seniority, provided he is qualified to perform the higher job. Since in many cases most handicapped people cannot perform the prerequisite common labor, the employer cannot place handicapped applicants in jobs which they could perform well, perhaps even more effectively than the physically normal, because these jobs are generally classified as higher than common labor.

Education, legislation, and collective

bargaining eventually may result in the amendment of workmen's compensation laws and seniority policies and generally make the handicapped worker more attractive to employers. One respondent states:

... an acknowledgment of the fact that this is a quest toward the proper utility of manpower and not a crusade in social welfare. Then, and only then, will each and every individual worker who is physically handicapped see hope for the practical and honest solution of his problem.

References

1. Barker, Roger G.; Wright, Beatrice A.; Meyerson, Lee, and Gonick, Mollie R: Adjustment to Physical Handicap and Illness: A Survey of the Social Psychology of Physique and Disability, New York, Social Science Research Council, 1953.
2. Hamilton, Kenneth W.: Counseling the Handicapped in the Rehabilitation Process, New York, The Ronald Press Co., 1950.
3. Novis, Frederick W.: Job Readiness in Rehabilitation, What are the Essential Objectives? Personnel and Guidance Journal 31:83 (Nov.) 1952.

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A New Approach to the Treatment of Cervical Osteoarthritis with Radiculitis

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When one surveys the literature on the treatment of cervical arthritis, it soon becomes apparent that this clinical condition has been given much consideration and thought by the clinicians for many years¹⁻¹⁰. We have tried all of the various treatment methods employed, but in spite of some good to excellent results, we still have remained not too happy about our final outcome as these patients have often returned early for rehospitalization with the same complaints. We also believe that the average hospital or clinic has experienced the same results from the present acceptable treatment methods. Because of these unsatisfactory final results, we began to search for a better approach on treatment methods to relieve the patient of his discomforts and, at the same time, to sharpen our methods of differential diagnoses.

In studying this problem, it first became apparent that a review of the osseous makeup of the cervical region was essential, since there is no other division of the skeletal system which has more specialization or complicated motion than the cervical spine. In other divisions of the skeletal system there is much similarity, but in the cervical region the only common findings are those of the vertebral artery foramen and the bifid tips of the vertebral spinous processes. Consequently, this leaves actually only one functional element, the spinous processes, of similarity, the foramen being purely a passive structure.

On examination, the body of the seventh cervical vertebra reveals that it is much in keeping with the thoracic units in shape and surface markings. The elongation of its posteriorly projecting spine makes its identification easier and a palpable landmark which closely resembles the prominence of the first thoracic vertebra due to the fact that its spine slopes downward and backward.

This shape presents a striking contrast when compared to the atlas and axis, which have their bodies fused so that the Atlanto-axoid joints function quite independently from their sister vertebra to carry out their greatest function, which is rotation.

The rest of the cervical vertebrae, when viewed anteriorly, have a common marked upward curve on each side which forms a concavity into which nature has perfectly shaped and fitted the rounded lower surface of the superimposed sister vertebra. This clever architecture also produces, from a lateral view, a marked concavity, anteriorly to posteriorly, on the inferior surface to accommodate the corresponding convexity on the opposite side.

The rigid kyphotic curve, which is necessary and is maintained in the thoracic region, continues to a lesser degree into the 7th and 6th cervical area, where it gradually gives away to a compensatory lordosis at the 5th where mobility starts and steadily increases towards the occiput. This arrangement automatically increases over any other vertebral division, the range of motion in all planes because the vertebral bodies have this peculiar body shape to accommodate their articular processes with their facet joints to permit the fullest possible freedom of motion and to prevent easiness of binding. Another extremely important consideration to which we must devote our special attention is that the concavity on the upper surface of the bodies (when viewed anteriorly) gradually is reduced in depth

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from below upwards and a corresponding flattening of the curve on the upward portion on both sides except for the first and second cervical units. Likewise, the flattened areas, as noted below, are gradually decreased as we ascend the column, so there results in a natural narrowing of breadth of each successive vertebra. In other words, if one considers a cup and saucer relationship of these joints the second and third would be cup-like while the sixth and seventh become saucer-like in depth. This structural relationship results in a still larger mobility range than if such an arrangement were not present. This also accounts for the need of the naturally downward sloping of the spinous processes and the alteration of the sloping of the articular processes as to their joint surfaces. It is recalled that the first and second have a flat circular shape with a downward slope posteriorly to anteriorly while the sixth and seventh are almost in the opposite direction. Accompanying this alteration of position there is a gradual increasing rounding of the superior facet to fit rather snugly into the corresponding concavity below.

In the Atlanto-axoid joint the articular facets slope, posteriorly, downward and outward and below this vertebra the direction gradually changes, anteriorly, downward and inward. This change along with the fusion of the bodies of these vertebrae encourages greater freedom of rotation.

No discussion of the mechanics of motion of the cervical spine is complete without at least a short review of the occipito-atlantoid joint. In this joint, the articular surfaces have a more acute angle and slope posteriorly to anteriorly in a somewhat gradual downward direction. The natural occurrence of this enlargement of these joints also not only produces more surface but allows a smooth, gliding-like action. The lack of a spinous process on the atlas has been compensated by the production of the buttress-like prolongation of the occipito area. This also acts as a natural brake to prevent undue forward flexion.

It is thus easy to see that the mecha-

nism for movements of the cervical spine is not simple but rather a series of complicated actions. These actions are produced and carried out through many angles and planes so that the stress can be equally distributed under normal muscular action but may be easily altered by abnormal demands or trauma so as to produce undue mechanical or direct injury not only to the intervertebral cartilages but also to the osseous surfaces and other surrounding ligaments and soft tissues. It is apparent that the more prominent projections or osseous points will receive the bulk of the stress or strain and thus senescence or aging processes as well as acute and chronic trauma is so conducive to hypertrophic or degenerate joint changes. These changes generally appear earlier in the lower four cervical vertebrae but may later become generalized with widespread spur formations which gradually encroach upon the spinal foramina and mechanically exert pressure upon the nerve roots passing through them. This encroachment on the nerve roots will consequently cause radicular or referred pain over their efferent distributions. Accompanying this process is a corresponding narrowing of the joint spaces and the cartilagenous structures between the joints. The most amazing fact about this process is that frequently the amount of chronic arthritic changes as noted on roentgenogram studies is far greater than the symptoms produced. Often the patient is in complete ignorance of any changes in his cervical region and in our experience, many physicians, fail to appreciate fully these changes. It is not infrequent that the first alertness on the part of the patient to his cervical changes comes about through the demonstration of restriction in motion either voluntary or involuntary. Before being alerted the patient has overlooked the dull, aching pain in the cervical region in favor of the sharp pain at the site of referral. Another important fact is that the restriction of motion is not always in keeping with the roentgenogram examination. Soft tissue inflammatory reactions, as well as peri-

and intra-articular adhesions, account for the majority of reduction of motion range rather than osseous blocking. One must always be suspicious of the existence of these adhesions when the patient has relatively free motion up to a given point and then suddenly develops pain which becomes severe on attempting any increase in range of motion.

In contrast to the adhesions rule, one must always consider acute soft tissue inflammation present when the motion is painful at the beginning or onset of motion range and it steadily increases in severity as to the range of motion attempted. A final examination test consists of having the patient rest his head in comfortable position, which is acute flexion, and then slowly attempt extension by looking upward and backward which excites acute, painful reaction when inflammatory reaction is present. The patient then returns to his comfortable position and attempts side bending and, if this becomes suddenly limited and painful, the diagnosis of adhesions is the one of choice.

It is for the relief of pain that the patient usually consults the physician and usually this will be at the site of referral rather than the neck. It is thus vitally important that the physician first considers the nerve root distribution from the cervical region if he is to be accurate in his diagnosis. With the brachial plexus arising from the lower four cervical nerves and the first thoracic nerve, it becomes quite apparent that the pain and other symptoms can be widely distributed. The patient thus may complain of pain in the precordial region, the shoulders, arm, forearm, or hand regions as well as skin paresthesias of these areas. In advanced cases, he will undoubtedly also present interosseous and other intrinsic muscular atrophy and often generalized upper extremity weakness.

In addition, one must not overlook the distribution of the cervical plexus and the fact that the occipito-atlanto-axoid joints more frequently radiate the pain upward than downward. This pain referral frequently accounts for the oc-

cipital headaches which plague every physician during his practice of medicine. Closely paralleling this occipital pain syndrome is the posterior auricular radicular pains by way of the superficial branches of the auriculo-temporal and transverse facial divisions of the 3rd and 4th cervical roots. Because of this wide muscular coverage, as well as other structural elements which may be involved, it becomes easily apparent that the physician can be misled by the patient's complaints to make a diagnosis of angina pectoralis, coronary thrombosis, bursitis, progressive muscular atrophy, cervical rib, scalenus anticus syndrome, shoulder periarthritis or fibrositis, Raynaud's disease or even primary neuritis and migraine.

To prevent a false diagnosis, the physician must carefully use all of the physical and clinical diagnostic skills and procedures. He must be accurate about his history taking so that he may fully ascertain where the sharp pain is located and also, if any dull pain is masked in the background. This gives him a better rule for his testing procedures and governs his interpretation of the lack of motion range as well as excitement of the pain component. Range of motion must always be first tested actively, then active-assistively and, finally, passively, so that not only restriction of range is tested but also freedom of motion and which method aggravated the pain to the greatest intolerable limits. Next a careful dermatometer (pin point sharpness) search of the neck surface is made for locating any superficial sensitive areas to rule out cutaneous reflex reactors. This is followed by light palpation and then deep palpation especially along the anterior surface of the cervical region to locate any painful radicular points. The level of such radicular points is carefully recorded as well as the site of the pain referral when the tender area is compressed against the transverse process of the vertebrae.

Diagnostic roentgenograms should always be taken as a guide for studying not only the degenerate or hypertrophic reactions but also the space narrowing

and the curvature changes resulting from either muscular spasm or permanent osseous changes. These roentgenograms should always have an anteroposterior view, a lateral view, and an oblique, with full flexion and full extension (fig. 2). The latter view will aid in fully evaluating the foramen and any encroachment of spurs upon the nerve roots. In addition, it presents a very reliable study for comparison of the vertebral body shape and size as well as the joint spaces and intervertebral cartilages. The oblique extension gives the physician a clue on motion restriction and motion range as to whether the range is equal above or below the fifth cervical vertebra. Normally, this range is more noticeable between the third and fifth than below the fifth. Above the third, the range is still more markedly increased than between the third and fifth.

The next step in clinical evaluation is the neurological examination. This should not only consist of tendon reflex testing but complete subjective sensory sharpness evaluation by dermatometer and objective skin resistance determination by the neurodermometer to evaluate fully the equality of the patient's paresthesia complaints with actual pain factors. If muscular atrophy and muscular weakness is discovered, electro-diagnostic procedures such as response to faradic and galvanic currents as well as chronaxia determinations will further aid in the differential diagnosis. These low voltage tests should always be preliminary to the final evaluation by electromyographic studies.

These procedures are vitally necessary in order to rule out such lesions as ruptured nucleus pulposus, neoplastic growths or progressive muscular atrophy. The diagnoses by electromyographic tracings of nucleus pulposus rupture or neoplastic growths are usually confirmed or ruled out by the unilateral limited cervical root distribution. Progressive muscular atrophy is more difficult because it produces wide distribution of polyphasic and fibrillation complexes as does osteoarthritis when root

compression is present. Youthfulness of the patient at the time of onset, and a rapid course of this disease, leading to bulbar symptoms are the most important factors in considering progressive muscular atrophy rather than the visible atrophy of the shoulder girdle or intrinsic hand muscles, which is common to both diseases.

Once the accurate diagnosis of cervical osteoarthritis with radiculitis has been established, the institution of correct treatment is of paramount importance. In the past, these patients have been treated by rather conservative measures, consisting of salicylates, supportive dietary, and vitamin therapy, bed rest, with or without traction, and physical therapy. The physical therapy consisted of locally applied radiant energy in the advanced cases with spurring and joint space and foramen narrowing. Shortwave diathermy is reserved for the earlier cases where the increased vasodilation would not produce intolerable pain. The thermotherapy was then followed by effleurage to the neck and shoulder regions and Sayre head sling applications when radiculitis was present. The Sayre sling is known to be a great aid in the relief of or reduction of radicular pains as demonstrated by McFarland and Krusen¹¹ in their work and studies using x-ray as a means of determining the changes in the vertebral column during traction. By this technic they demonstrated that the intervertebral space was increased and the foramen area enlarged.

In spite of these acceptable methods of treatments we have always felt that too many patients were returning too quickly with exacerbation of their complaints which originally brought them to us for relief. Any new technic of treatment must, therefore, meet two needs—namely, faster relief of pain and more lasting results.

Continuous traction in bed always appeared to aggravate the patient's pain when it was first applied because of the tendency to change the cervical curvature; at the same time, there is an overproduction of voluntary muscular guard-

ing. Often several days elapsed before the patient could relax sufficiently to obtain any desired degree of relief from pain and spasm. Early return of the symptoms were noted upon releasing the traction. By studying these patients with electromyography, it was discovered that this type of traction definitely increased the spasm and the resulting polyphasic fasciculation voltages and complexes. This increased number of complexes of higher microvoltages remained rather constant until the element of fatigue was produced in the muscles. On the sudden release of the traction the polyphasic fasciculations soon returned as did the palpable spasm. This was especially notable on returning the patient to an upright posture. This resulted in an early return of pain as well as alteration or straightening out of the spinal column lordosis. Further electromyographic studies brought to light the fact that brief periods of manual traction reduced the irritation fasciculations especially when released slowly and radiant heat was helpful in obtaining muscle relaxation, reduction of the increased microvoltages and the polyphasic fasciculations. It was therefore rationalized that a combination of thermotherapy and traction given simultaneously would be of greater help than when given in sequence. The saturated moist air cabinet, which had proved so relaxing in

lumbar muscle spasm, offered an easily adaptable apparatus for accomplishing this goal. We then fabricated a traction apparatus for attachment to the head of the cabinet so by means of a jury mask and a traction rope with pulley arrangement, we were able to increase weight gradually while the patient was receiving the benefit of saturated hot moist air to the cervical and thoracic areas.

In a series of more than 300 patients with radicular symptoms, we have found that better muscle relaxation and relief from pain was accomplished by this technic than by the prolonged mechanical pull of the traction apparatus. Our clinical impression that such spasms were disappearing during and following treatment were confirmed by the electromyographic tracing. There was almost a complete lack of resting polyphasic fasciculations and those which did appear were limited to an occasional burst of a single, or not more than three or four, low voltage simple motor complexes of 10 to 15 microvolts. These results were especially encouraging after starting the use of a gradually increasing weight load beginning with five pounds and slowly increasing to fifteen pounds along with a cabinet setting of 110 F. for a period of thirty minutes.

Although this technic brought about good muscle relaxation and reduction of cervical and referred pain, it was soon discovered that restriction of motion was still remaining in about twenty per cent of our patients. It was realized that these patients were suffering from adhesions and in a few, by binding of the vertebrae. The need of manipulation to break up skillfully the adhesions or reduce the binding to re-establish full mobilization of the soft tissues stimulated the search for a technic which would avoid the extreme dangers of manipulation under anesthesia. Before describing our technics, I wish to insert a word of caution to the effect that manipulation does not alter the intra-articular structures or the spur forma-



Fig. 1 — Moistaire cabinet, showing cervical traction adaptation.

The first manipulative procedure is

the use of traction, during which the patient is recumbent with his shoulders near the end of the treatment table and his head completely unsupported. The physician's right hand is placed transversely behind the patient's head with the occiput resting freely and securely in the palm of the hand. The fingers then grasp the one side of the bone and the thumb the other side. The forearm is brought in a fully ulnar deviated position so that a ninety-degree angle is formed in relationship to the occiput. The fingers of the left hand are flexed about the tip of the mandible and steady firm traction is started to take up the muscular and joint slack without allowing any chin drop. The right hand is brought into contact with the surface of the table, while the patient's chin is slowly raised to fullest possible limit so that any additional slack is taken up. The occiput hand is cleared of contact with the table while both elbows are straightened and the hands are fully immobilized. The physician exerts a smooth mobilizing force by moving his trunk straight and directly backward. The head of the patient is gently rotated five or six times from side to side with a smooth but quick motion. The last four or five degrees of motion should end in a carefully controlled steady traction assisted by a rapid snaplike rotatory twist.

The second manipulative procedure is for testing as well as freeing the anterior posterior range which is not under voluntary control. A small pillow is placed near the end of the treatment table in order to support properly the patient's shoulders since the entire cervical spine and cranium is to be projected beyond the end of the table during this procedure. The patient's head is thus supported by the physician's thigh with his foot resting on a footstool. The thigh must be free to be used as an incline plane to raise and lower the head. The right hand is slipped between the patient's occiput and the operator's thigh. The hand must be placed at right angle to the occiput while the other hand grasps the chin in order to guide it. This is very essential because the patient's

face must constantly face the ceiling. The physician's thigh is carefully released as a supporting agent and the head is lowered down towards the floor. The motion is always aided by a slight downward pressure on the chin until the fullest possible range is completed. The occiput supporting hand reverses the direction of motion and force in a straight upward motion is applied until range has been completed. At this point, an additional force is applied by raising the back of the head in a smooth forward arc. The operator can add a few more degrees of range of motion if he applies pressure through his abdomen to the top of the patient's head in a force direction aimed towards the patient's feet providing the operator avoids any tendency to flex the patient's head forward or backward.

The third manipulative procedure is side bending movements. The physician is again located at the end of the treatment table directly facing the long axis of the patient's trunk, with the patient in a recumbent position. The right or left hand is placed under the occiput according to whether left or right mobilizing force is being applied. If the right hand is under the occiput the head is brought over towards the right in a side bending direction at the same time the head is rotated about thirty degrees to the right. The palm of the left hand is now placed in a crown facing position with the first finger resting against a line drawn from the tip of the transverse process of the spinous process of the vertebra being mobilized. The thumb of this hand now points and rests across the side of the patient's neck. This hand becomes the stabilizing fulcrum and must be held steady. The slack of the muscles and other structures is taken up by right hand rotation of the head until the mastoid process rests securely in the palm of the left hand so that it can act fully as a stabilizing force. The physician's wrists are fully extended and the forearms must be brought into a parallel position to each other so that the right hand can exert the fullest possible mobilizing force by a sudden down-

ward pressure at as near a forty-five degree angle as possible. This technic is applicable for manipulation of C3-4-5-6-7 by simply modifying the amount of side bending and rotation necessary to take up the slack which is always the paramount need in manipulation before exerting the mobilizing force.

The fourth manipulative procedure is necessary to mobilize properly the first two thoracic as well as the 6th and 7th cervical vertebrae. The patient is lying face downward on the treatment table. The arm nearest to the edge of the table is parallel to the side of the body, while the other arm is abducted as fully as possible, with the elbow flexed to a ninety degree angle. The physician rotates the patient's head towards him as he places his one hand beneath it so the patient's cheek can rest securely on his forearm and his hand thus supports the patient's occiput. The thumb of the opposite hand is placed against the upper side of the spinous process of the vertebra being mobilized. The supporting hand is ready to take up the slack by raising the patient's head slightly as it is brought forward towards the operator's trunk. The thumb is ready to exert the mobilizing force by pressure towards the treatment table at an angle relationship of about forty-five degrees.

Following ten days to two weeks of the foregoing treatment procedures, it is now possible to prepare our most acute cases for discharge from the hospital to home care. The patient is instructed on the application of radiant energy at home. He is advised to secure and use a Sayre headsling as well as to perform active cervical exercise to maintain fullest possible range of motion. On application of the Sayre sling he is taught to sit erect, take up rather firmly the slack through the pulleys and then slowly slouch into the full benefit of the traction apparatus. He is encouraged to hold the tension tight with one hand to assist rotating his head from side to side with the opposite hand against the mandibular area. He is cautioned to release slowly at all times

the pull and guard against syncope from jugular compression. Finally, the patient is taught and advised to continue shoulder elevation exercises for prevention of brachial plexus drag as well as postural correction.

Summary

A new approach to the treatment of radiculitis associated with osteoarthritis of the cervical and upper thoracic spines has been presented with the mechanics responsible for the pain production. This treatment method has resulted in excellent reduction of the neck pain and headaches in more than seventy per cent of cases with this involvement. Shoulder, arm, and hand pain cases have experienced equally as good results, while those with chest pain have had very good relief in more than fifty per cent of the cases treated. This technic has reduced the period of hospitalization by at least thirty per cent.



Fig. 2 — Cervical x-rays, acute extension.

References

1. Sayre, L. A.: *Spinal Disease and Spinal Curvature, Their Treatment by Suspension and the Use of the Plaster of Paris Bandage*, Philadelphia, J. B. Lippincott Company, 1877.
2. Terhune, S. R.: *Mechanical Treatment of Cervical Arthritis*, J. M. A. Alabama, 7:255 (Jan.) 1938.
3. Hanflig, S. S.: *Pain in the Shoulder Girdle, Arm and Precordium Due to*

- Cervical Arthritis. J.A.M.A. 106:523 (Feb. 15) 1936.
4. Morton, S. A.: Localized Hypertrophic Changes in the Cervical Spine with Compression of the Spinal Cord or of Its Roots. J. Bone & Joint Surg. 18:893 (Oct.) 1936.
 5. Krusen, F. H.: Backache: The Relation of Physical Therapy to Its Management. Canad. M. A. J. 42:534 (June) 1940.
 6. Nachlas, I. W.: Pseudo-Angina Pectoris Originating in the Cervical Spine. J. A. M. A. 103:323 (Aug. 4) 1934.
 7. Turner, E. L., and Oppenheimer, Albert: A Common Lesion of the Cervical Spine Responsible for Segmental Neuritis. Ann. Int. Med. 10:427 (Oct.) 1936.
 8. Nathan, P. W.: The Neurological Conditions Associated With Polyarthritides and Spondylitis. Am. J. M. Sc. 152:667 (Nov.) 1916.
 9. Hubeny, M. J.: Radiculitis. Radiology 20:331 (May) 1933.
 10. Parker, H. L., and Adson, A. W.: Compression of the Spinal Cord and Its Roots by Hypertrophic Osteoarthritis. Surg., Gynec. & Obst. 41:1 (July) 1925.
 11. McFarland, J. Wayne, and Krusen, Frank H.: Use of Sayre Head Sling in Osteoarthritis of Cervical Portion of Spinal Column. Arch. Phys. Therapy 24:263 (May) 1943.

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CHICAGO SOCIETY OF PHYSICAL MEDICINE AND REHABILITATION

will meet on Wednesday, January 26, 1955 at 8 P.M.,
Loyola University, Stritch School of Medicine, 706 S.
Wolcott Ave., Chicago.

Topic discussed will be "Organic Speech Problems and
Aphasia and Their Treatment." Guest speakers are:
Harold Westlake, Ph.D., Northwestern University,
School of Speech Pathology and Joseph Wepman,
Ph.D., University of Chicago.

MEDICAL NEWS

Members are invited to send to this office items of news of general interest, for example, those relating to society activities, new hospitals, education, etc. Programs should be received at least six weeks before the date of meeting.

PERSONALS

Earl F. Hoerner, Sellersville, Pa., formerly director of the State Division of Alcoholic Studies and Rehabilitation, resigned October 15 to take a position with the Kessler Institute for Rehabilitation, Newark, N.J. — The Visiting Staff of the Charity Hospital of Louisiana at New Orleans elected **Nathan H. Polmer**, New Orleans, President of the annual meeting in October. — The topic "Ultrasonics" will be presented by **Ben L. Boynton**, Chicago, at the January, 1955 meeting of the Illinois Chapter, American Physical Therapy Association. — **Jacob Goldberg**, Castle Point, N.Y., participated in a panel discussion at the VA Hospital at Albany on October 15. The main topic discussed was the effect of the newer anti-tuberculosis drugs on the rehabilitation program in VA hospitals. — The Medical College of the State of South Carolina, in observing Founders' Day on November 4, heard **Edward W. Lowman**, New York City speak on "The Rheumatoid Arthritic Cripple: Total Rehabilitation." — **Otto Glasser**, Cleveland, discussed the subject "Medical Physics and the Neo-Atomic Age" at the sixth annual Morris Lamm Blatt Memorial Fund Lecture, held at Cook County Hospital, October 18. — The Philadelphia Academy of General Practice presented a Seminar on Cardiology in October. **Joseph G. Benton**, New York City, spoke on "Rehabilitation of the Cardiac." — **Rex O. McMorris**, Louisville, Ky., appeared on the program of the Seminar on Rheumatic Diseases, co-sponsored by the Kentucky Chapter of the Arthritis and Rheumatism Foundation and the University of Louisville Postgraduate Seminar on October 28. — At the sectional meeting on Treatment and Rehabilitation of the Cerebral Palsied held at the National Rehabilitation Association Conference in October, **Donald A. Covalt**, New York City spoke on "The Rehabilitation Center and the Severely Handicapped." — **F. F. Schwartz**, Birmingham, Ala., addressed the Southeastern section of Corrective Therapists, Murfreesboro, Tenn., October 9 on "Corrective Exercises in Chronic Diseases." On October 11, he addressed the Tuscaloosa

Medical Society, Tuscaloosa, Ala., on "Ultrasonics." — The Brainerd Junior Women's Club of Chicago heard **Louis B. Newman**, Chicago, speak on "Physical Medicine and Rehabilitation of the Disabled" on October 19. — **Howard A. Rusk**, New York City, presented the lecture "Emotional Factors in Physical Disability" as part of a series of lectures on psychosomatic medicine on December 9 at the Philadelphia Institute for Education and Research in Psychiatry, Philadelphia Psychiatric Hospital. — The Medical Society of the State of Pennsylvania awarded **Frank H. Krusen**, Rochester, Minn., with the Pennsylvania Ambassador Award for 1954. — **Philip R. Trommer**, Philadelphia, served as moderator for the symposium on low back pain at the fourth annual Pemberton lecture given October 14 under the sponsorship of the Philadelphia Rheumatism Society and the Eastern Pennsylvania Chapter, Arthritis and Rheumatism Foundation. **Joseph L. Hollander**, Philadelphia, participated in the panel discussion.

RECENT PUBLICATIONS BY MEMBERS

John H. Kuitert, with co-author, "Quadratus Lumborum Myofascitis." *Northwest Medicine*, October, 1954.

Frank H. Krusen, "Physical Medicine and Rehabilitation for Chronic Illness." *The Ohio State Medical Journal*, October, 1954.

S. Malvern Dorinson, "Breathing Exercises for Bronchial Asthma and Pulmonary Emphysema." *Journal of The American Medical Association*, November 6, 1954.

Ernst Fischer, with co-authors, "Effect of Moderate and of Weak Ultrasonic Exposures Upon Normal and Denervated Mammalian Muscles." *American Journal of Physical Medicine*, October, 1954.

Ralph E. Worden, "Civilian Hospitals as Rehabilitation Centers." *The Ohio State Medical Journal*, October, 1954.

Grace M. Roth, with co-authors, "Chemical Quantitation of Epinephrine and Norepinephrine in Thirteen Patients with Pheochromocytoma." *Circulation*, November, 1954.

Walter M. Solomon, "Progress in Physical



Medicine and Rehabilitation." Journal of The American Medical Association, October 23, 1954.

Eugene Neuwirth, "Neurologic Complications of Osteoarthritis of the Cervical Spine." New York State Journal of Medicine, September 15, 1954.

Morton Marks and Joseph Goodgold, "Rehabilitation of the Patient with Multiple Sclerosis." Journal of The American Medical Association, October 23, 1954.

Bert A. Treister, with co-authors, "Experiences with 250 Cerebrovascular Accident Cases in a Chronic Disease Hospital." The Ohio State Medical Journal, October, 1954.

Donald A. Covalt, "Practical Mechanical Devices for Use by Disabled Persons." Journal of The American Medical Association, October 23, 1954.

Louis N. Rudin, "Physical Medicine and Rehabilitation in Rheumatoid Arthritis." Current Medical Digest, October, 1954.

Frederic J. Kottke, "Measures That Have Proved Helpful in Backache." Journal of The American Medical Association, October 30, 1954.

APPARATUS ACCEPTED

The following information relative to apparatus accepted by the Council on Physical Medicine and Rehabilitation of The American Medical Association is reprinted, with permission, from the following issues of The Journal of The American Medical Association: October 16 and November 6, 1954.

Meta-Basal Portable, Model MB-1: Electro-Physical Laboratories, Inc., 65 Harvard Ave., Stamford, Conn.

The Meta-Basal Portable, Model MB-1, is an apparatus for determining a patient's basal metabolic rate from the time required for the patient to consume a predetermined quantity of oxygen. It is housed in a wooden carrying case and can be set on a table. The initial quantity of oxygen is supplied from small Oxycaps measuring approximately 1.9 cm. ($\frac{3}{4}$ in.) in diameter by 5 cm. (2 in.) in length. Each of the Oxycaps supplied is stated to contain an amount of oxygen that, at standard conditions of temperature and pressure, measures very nearly 1,000 cc. The recording apparatus, which uses a special Thermoscribe stick instead of an ink-writing pen, is driven by electricity.

Unpacked the apparatus measures 38 (height) by 43 by 25 cm. (15 by 17 by 10 in.) and weighs 13.6 kg. (30 lb.). Packed for shipment it measures 47 by 55 by 37 cm. (18½ by 21½ by 14½ in.) and weighs 16.8 kg. (37 lb.). The shipping weight includes two rubber breathing tubes, breathing tube support arm, two rubber mouthpieces, nose clamp, power cable, Oxy-cap pouch, six Oxy-caps, bag of carbon dioxide absorbent, vial Thermoscribe stick, roll of recording paper, spare fuses, spare pilot lamps, rotary calcula-

tor, instruction book, and leatherette cover.

The apparatus requires 60 cycle alternating current at 117 volts and draws 35 watts.

Radioear Hearing Aid, Model 820: E. A. Myers & Sons, Inc., 306 Beverly Rd., Pittsburgh 16. Distributor: Radioear Corporation, 306 Beverly Rd., Pittsburgh 16.

The Radioear Hearing Aid, Model 820, is a tubeless instrument employing three transistors. An unusual feature is its ability to operate one, two, or three mercury-type dry cells, depending on the amplification desired by the user. If less than three cells are used their place is taken either by dummies or by reducers. A dummy is made of translucent substance in the form of a cylinder with an axial conductor of low (negligible) resistance; a reducer resembles a dummy but its axial conductor has a resistance of about 30 ohms. Six combinations are possible (C = cell, R = reducer, D = dummy): CCC, CCR, CCD, CRD, CRR, and CDD. Any given combination of three units is inserted into a tube or cylinder of transparent material and then placed in the instrument. Maximum power is given by the combination CCC. Both air and bone conduction receivers are available, and an inductive pickup element called the Phonemaster is provided for direct telephone reception. The microphone is magnetic.

The body of the instrument, without minor projections, measures 70 by 50 by 22 mm. The amplifier unit without battery weighs 107 gm., the earphone 7.6 gm., the receiver cord 2.5 gm., and the three mercury cells in holder 39 gm., making the total weight 156.1 gm.

Micronic "All American" Hearing Aid: Audivox, Inc., (Successor to Western Electric Hearing Aid Division), 123 Worcester St., Boston 18.

The Micronic "All American" Hearing Aid is a tubeless instrument that contains three transistors. It operates on either one or two mercury cells (1.25 or 2.5 volts). The body of the instrument measures 75 by 47 by 19 mm. and weighs 86.5 gm. The earphone weighs 7.5 gm., the receiver cord 3 gm., and the battery 26 gm., making the total weight 123 gm.

Otarion Hearing Aid, Model F-22: Otariion, Inc., 185-7 Ashford Ave., Dobbs Ferry, N.Y.

The Otariion Hearing Aid, Model F-22, has two vacuum tubes and one transistor and requires one 1.25 volt mercury cell and one 22.5 volt zinc-carbon battery. The on-off switch is combined with the volume control and operates by dial; the tone control, which is of the lever type, has three settings. The body of the instrument measures 85 by 65 by 24 mm. and weighs 118.5 gm. The earphone weighs 8.2 gm., the receiver cord 2.6 gm., the A-battery 29.4 gm., and the B-

battery 31.6 gm., making the total weight 190.3 gm.

Microtone Hearing Aid, Model T1 (Red Dot): The Microtone Corporation, 758 S. Mississippi River Blvd., St. Paul 1.

The Microtone Hearing Aid, Model T1 (Red Dot) is a tubeless instrument employing three transistors and operating on a 1.25 volt mercury cell, or a 1.5 volt dry cell, or a 2.5 volt battery. The latter has two small cells connected in series and in a plastic tube. The apparatus has both tone and volume control. The amplifying portion of the instrument, barring minor projections, measures 75 by 57 by 20 mm. and weighs 131.5 gm. The earphone weighs 8.5 gm., the receiver cord 2.5 gm., and the 2.5 volt battery 32 gm. The total weight is 174.5 gm.

Microtone Hearing Aid, Model T1 (Yellow Dot): The Microtone Corporation, 758 S. Mississippi River Blvd., St. Paul 1.

The Microtone Hearing Aid, Model T1 (Yellow Dot) is a tubeless instrument. It uses three transistors like Microtone Hearing Aid Model T1 (Red Dot), but differs in details of wiring that permit it to operate with batteries supplying up to 4 volts (instead of the maximum of 2.5 volts that the Red Dot Model permits). The battery supplied with this instrument has three mercury cells and supplies 4 volts. It can be adjusted as to maximum acoustic output by changing the voltage of the batteries used; in addition, it has a volume and tone control. The body of the instrument measures 75 by 57 by 20 mm. and weighs 126 gm. The earphone weighs 8.3 gm., the receiver cord 2.7 gm., and the battery 40 gm., making the total weight 177 gm.

Burdick Microtherm, Model MW-1: The Burdick Corporation, 635 Plumb St., Milton, Wis.

The Burdick Microtherm, Model MW-1, generates electromagnetic radiation of wavelength 12.2 cm., corresponding to a frequency of 2,450 megacycles. It has the Federal Communication Commission's Type Approval D-560.

The apparatus is housed in a movable cabinet mounted on casters. Without the arm supporting the coaxial cable and director, it measures 98 (height) by 55 by 46 cm. (38½ by 21½ by 18 in.) and weighs 54 kg. (120 lb.). It is provided with three directors. Director A, which is hemispherical, is 10 cm. in diameter; director B, also hemispherical, is 15 cm. in diameter; director C, of the corner type, is rectangular.

Including directors and coaxial cable, the apparatus makes a package that measures 109 by 57 by 67 cm. (43½ by 22 by 26½ in.) and weighs 75 kg. (165 lb.).

Microtone Hearing Aid, Model T-31 (Micro-Mite): The Microtone Corporation, 758 S. Mississippi River Blvd., St. Paul 1.

The Microtone Hearing Aid, Model T-31, also called the Micro-Mite Model, uses one transistor, two vacuum tubes, one 1.25 volt mercury cell, and one 15 volt B-battery. The amplifier unit measures 65 by 44 by 20 mm. and weighs 68 gm. The earphone weighs 8 gm., the receiver cord 3 gm., the mercury cell 12.5 gm., and the B-battery 14 gm., making the total weight of the hearing aid 105.5 gm.

Telex Hearing Aid, Model 956: Telex, Inc., Telex Park, St. Paul 1.

The Telex Hearing Aid, Model 956, is a tubeless instrument incorporating three transistors and using either one or two 1.25 volt mercury cells. It is designed for air conduction.

The main unit measures 89 by 49 by 16 mm. and weighs 97.5 gm. The earphone weighs 7 gm., the receiver cord 2.2 gm., and two cells 25 gm., making the total weight of the instrument when worn for maximum acoustic output 131.7 gm.

Camp "Sheer-Spun" Elastic Stockings: S. H. Camp and Company, 109 W. Washington St., Jackson, Mich.

The following models of Camp "Sheer-Spun" Elastic Stockings are available: Model 1600, full length, nylon; Model 1615 full length, cotton; Model 1645, knee length, cotton. A pair of these stockings packed for shipment weighs between 85 and 100 gm. (3 to 3½ oz.). The stockings have a heel, but the toe is open. Users of the nylon stockings are warned by the manufacturer not to use detergents when washing them.

Sonotone Hearing Aid, Model 1111: Sonotone Corporation, Elmsford, N. Y.

The Sonotone Hearing Aid, Model 1111, has three transistors and is powered by either a 1.25 volt or 2.5 volt battery. Three levels of power output for each battery voltage are available by adjusting the current drawn from the batteries. This model is available either with air or bone conduction receivers and optional external telephone pickup or microphone.

The body of the instrument measures 78 by 45 by 16 mm. and weighs 81 gm. The earphone weighs 7.5 gm., the receiver cord 3 gm., and the battery 26 gm., making the total weight 117.5 gm.

CONGRESS PARTICIPATES IN AMA MEETING

At the Clinical Meeting of the American Medical Association, held in Miami, Florida, November 29-December 2, 1954, the following Congress members presented scientific exhibits: Howard F. Polley, Rochester,

Minn., "A New Punch Biopsy Technique for Diagnosis of Joint Diseases": Harold Lefkoe and Albert A. Martucci, Philadelphia, "Malingering and Rehabilitation."

NEW CONGRESS MEMBERS

At the recent Washington meeting, the following were elected to membership in the Congress, effective with January, 1955: Dr. Ernesto Saldias G., Polio-Rehabilitation of W.H.O., c/o Direccion General de Salubridad, San Jose, Costa Rica, and Dr. Gustavo H. Blankenburg, Apdo. Correos del Este 4206, Caracas, Venezuela. Dr. Blankenburg is an Associate Member.

NFIP AWARDS SCHOLARSHIPS

Scholarships in the field of physical therapy have been awarded students at the following schools: Albany Hospital, Baylor University, Boston University, Bouve-Boston School, Charity Hospital of Louisiana, Children's Hospital Society, Cleveland Clinic, Columbia University, D. T. Watson School of Physiatrics, Duke University, Hermann Hospital, Medical College of Virginia, New York University, Northwestern University, St. Louis University, Simmons College, Stanford University, State University of Iowa, University of Buffalo, University of California, University of Colorado, University of Connecticut, University of Kansas, University of Michigan, University of Minnesota, University of Pennsylvania, University of Southern California, University of Texas, University of Wisconsin and Washington University.

AMWA OFFICERS FOR 1955 ELECTED

At the 11th Annual Meeting of the American Medical Writers' Association, held in Chicago, September 24, the following were elected for 1955: President-Elect, Richard M. Hewitt, M.D., Rochester, Minn.; First Vice-President, Alexander B. Gutman, M.D., New York City; Second Vice-President, Norris J. Heckel, M.D., Chicago; Editor of AMWA Bulletin, Charles E. Lyght, M.D., Rahway, N.J.; Secretary-Treasurer, Harold Swanberg, M.D., Quincy, Ill., and Accounting Officer, Nathan S. Davis, M.D., Chicago.

NEWLY REGISTERED THERAPISTS

October 27, 1954

Abbott, Jessie Ellen, PO Box 174, Tuskegee Institute, Ala.

Albert, Manis, 601 S. Scott St., New Orleans, La.

Andrews, Charles Marshall, 1795 Park Blvd., Palo Alto, Calif.

Appleby, Ann, 11 Council St., Charleston, S. C.

Atwood, Barbara Amelia, Straits Turnpike, Watertown, Conn.

Baldrige, Robert Johnson, 1071 Willow Rd., Menlo Park, Calif.

Barrett, Nancy P., 1610 Brookside Dr., Flint, Mich.

Bergstrom, Constance Jean, 5931 N. Talmann Ave., Chicago, Ill.

Bird, William Richardson, 201 Burns St., Ida Grove, Iowa.

Blakkolb, Dana Lovee, Box 456, 1200 N. State St., Los Angeles, Calif.

Block, Marian V., 955 Fourth Ave., S.E., Rochester, Minn.

Branch, Charles Franklin, 2327 S. Broadway, Denver, Colo.

Britt, Norman G., RR 1, Bernie, Mo.

Burton, Dorothy Jean, Grandview Rd., Moundsville, W. Va.

Cady, Flo; d Wesley, 104 Frost Rd., Waterbury, Conn.

Campbell, Beatrice Arlene, 241 Wilson Ave., Rumford, R.I.

Carey, Nancy Ann, 1944 Praun Lane, Kansas City, Kans.

Carter, Charles H., 5045 E. Mercer Way, Mercer Island, Wash.

Cassel, Marie Ann, Le Hillier, Mankato, Minn.

Chase, Duane Arthur, 106 Westlawn Park, Iowa City, Iowa.

Coles, Mildred Maxine, 2701 N. W. 22, Oklahoma City, Okla.

Congreve, Virginia, 6159 S. Mozart St., Chicago, Ill.

Cook, Lois-Marie, Limestone, Me.

Coughlin, Barbara L., 217 Austin Ave., Syracuse, N.Y.

Couture, Robert E., 1974 30th Ave., San Francisco, Calif.

Crane, Peter M., Rt. 2, Roberts Rd., Dunkirk, N.Y.

Cronk, Harriet L., 305 10th St. S. E., Rochester, Minn.

Crosson, David Lee, 4234 Perry, Denver, Colo.

Crumback, Betty Jean, Perry, Mich.

Culhane, Dorothy Ann, 2432 W. Lunt Ave., Chicago, Ill.

Cummings, Wayne E., RR 2, Box 92, Winfield, Iowa.

de Castro, Muriel E., 376 Macon St., Brooklyn, N.Y.

Dexter, Daniel D., 1308 Havenhurst, Los Angeles, Calif.

Downs, Ralph, RFD 1, Smithfield, Utah.

D'Wolf, Jeanne E., 11 Ridgeview Ave., White Plains, N.Y.

Eigen, Martha B., 609 W. 174 St., New York, N.Y.

Eliassen, Grace L., Kelley, Iowa.

Emmons, Wilford H., 229 Finkbine Park, Iowa City, Iowa.

Evans, Anne M., Westhaven, Calif.

Everett, Miriam E., Box 4014, 4900 S. Lewis, Tulsa, Okla.

Findley, Ellen Jane, 4643 Esther St., San Diego, Calif.

- Fitzpatrick, Keith, Bluffs Trailer Ct., 1809 Tosterin St., Council Bluffs, Iowa.
- Flanagan, Michele Ann, 1323 Bohland Pl., St. Paul, Minn.
- Fortune, Martha Jane, 105 E. South Line St., Searcy, Ark.
- Foster, Bernice Joan, 17 Cedar St., Oneonta, N.Y.
- Gardy, Nellie Ann, RD 1, Brookfield, Ohio.
- Gasser, Gretchen G., 1232 St. Paul, Denver, Colo.
- Gillette, Joyce Alice, 1016 N. Olive St., Santa Ana, Calif.
- Glocke, Susan B., Mason's Island, Mystic, Conn.
- Grafton, Lucille F., 100 Fairview Ave., Albany, N.Y.
- Gray, Hazel W., 2684 Washington St., Gary, Ind.
- Gryth, Beverly Ann, Pembina, N. D.
- Habedank, Elizabeth T., 307 First St., Ada, Minn.
- Hackney, Charles B., 1067 N. Highland Ave., Atlanta, Ga.
- Hakes, Shirley L., Cropseyville, N.Y.
- Hanna, Richard C., 826 Summer St., West Lynn, Mass.
- Harkins, David C., Lisbon St., Lewiston, Me.
- Hatate, Raymond K., 419-D Koula St., Honolulu, T. H.
- Hetherington, Jess W., 302 4th St., Knoxville, Iowa.
- Hill, Ruth, 2201 Fifth Ave. S., Minneapolis, Minn.
- Holcomb, Margaret E., Box 124, Bancroft, Mich.
- Holter, Oystein, 1101 Francisco St., San Francisco, Calif.
- Hucko, Stephen, 558 Lawrie St., Perth Amboy, N.J.
- Johanson, Donna Lou, 1104 2nd Ave. N., Wheaton, Minn.
- Johnson, Audrie T., 575 Santa Fe St., San Bernardino, Calif.
- Johnson, Joy A., 162 Pine St., Auburn, Calif.
- Johnston, Lela Mae, 211 Whittle Ave., Olney, Ill.
- Jones, Mary Catherine, 1308 Princeton N. E., Albuquerque, N. M.
- Juliano, Erminia, 12752 Gregory St., Blue Island, Ill.
- Kaneko, Sachiko, Comstock Hall 220W, Univ. of Minnesota, Minneapolis, Minn.
- Kirkland, Marjorie Ann, 12 Lansing Ave., Troy, N.Y.
- Koppen, Barbara J., Buffalo Center, Iowa.
- Krueger, Patricia Jane, 3309 Mackinaw, Saginaw, Mich.
- Lawrence, Frances C., Box 85, VA Hosp., Butler, Pa.
- Lawson, Mary, 903 S. College Ave., Aledo, Ill.
- Lillis, Helene L., 14 Elm St., New Milford, Conn.
- Mac Farlane, Sarah Jane, 1241 Paget Ct., Grosse Pointe Woods, Mich.
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November 1, 1954

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BOOK REVIEWS

The reviews here published have been prepared by competent authorities and do not necessarily represent the opinions of the American Congress of Physical Medicine and Rehabilitation and/or the American Society of Physical Medicine and Rehabilitation.

WINE AS FOOD AND MEDICINE. By Salvatore P. Lucia, M.D. Cloth. Price, \$3.00 Pp. 145. Blakiston Division, McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36, 1954.

This book covers the use of wine as both food and medicine in a most interesting fashion. Little and perhaps unknown facts concerning the beverage are discussed. Of especial interest are the chapters on the action of wine on the neuromuscular system and the use of wine in the treatment of the aged and the convalescent. Numerous useful references are listed.

EAT, THINK AND BE SLENDER. By Leonid Kotkin, M.D., with assistance of Fred Kerner. Cloth. Price, \$2.95. Pp. 223. Hawthorn Books, Inc., 70 Fifth Ave., New York 11, 1954.

The author of this book is a physician specializing in the problems of weight control. His work in the field of geriatrics stimulated his interest in this problem. Here is discussed a new approach to dieting — letting the mind control the weight. A reducing plan that is easily followed at home or when dining out is included. It is recommended to all interested in a safe and sensible way to slenderness.

HOW TO BE A WOMAN. By *Lawrence K. and Mary Frank*. Cloth. Price, \$2.75. Pp. 144. with illustrations. Bobbs-Merrill Company, Inc., 724 N. Meridian St., Indianapolis 7; 468 Fourth Ave., New York 16, 1954.

This work might be suitable for young women of high school age. It is simply written and covers such subjects as dating, courtship, marriage, divorce, etc. The birth of a child is illustrated by drawings. Their sequence, however, is incorrect. Actually, the reviewer found nothing of value in this book. It merely is a rehash of "how to" books.

ANNUAL REVIEW OF MEDICINE. *Windsor C. Cutting*, Editor, Stanford University School of Medicine, *Henry W. Newman*, Associate Editor, Stanford University School of Medicine. Volume 5. Cloth. Price, \$7.00. Pp. 490. Annual Reviews, Inc., Stanford, Calif., 1954.

Titles of these reviews cover most of medicine; the sub-titles limit each year's presentation to aspects with which the year's reviewers are most familiar. The five volumes now available represent an authoritative, critical and informative survey which is both complete and penetrating. The reviews are presented neither as abstracts nor check-lists; rather, they are serious and instructive appraisals. The series in this volume admirably exemplify and achieve this aim.

The sections on radiology, radiation, laboratory aids, toxicology and dentistry review fields which are not adequately covered in other than specialty journals. The last section is an "Annotated List of Reviews." It points up the flood of periodical literature which threatens at times to engulf readers and is a demonstration of the fact that "larger fleas have smaller fleas upon their backs to bite 'em."

Taken all in all, this series represents the best available survey of scientific medical reporting.

LEIBESUBUNGEN MIT KOPERBESCHADIGTEN. Band 1. By *H. Lorenzen*. Paper. Price, DM 7.50. Pp. 218. with 182 illustrations. Band 2. By *H. Lorenzen*. Paper. Price, DM 22.50. Pp. 248. with 200 illustrations. Georg Thieme Verlag, Diemershaldenstrasse 47, (14a) Stuttgart-O, Germany, 1951, 1953.

This pair of paper-bound volumes deserves a permanent binding and a place in every library devoted to the care and rehabilitation of the physically handicapped. The first volume deals with general practical considerations, including exercises with and without apparatus, with the active preparation of amputation stumps, with exercises in the lying and sitting position, with falls, rolls,

somersaults, swimming, and diving.

The second volume suggests numerous games, goes into much detail regarding running, jumping and throwing for the amputee, the blind, the deaf, and other special groups, and gives innumerable hints for other sorts of physical activities from bicycling to fencing.

The difficulties of the text are partly offset by the extent to which English words have been adopted into the German vocabulary of sports and physical education, and to an even greater extent by the wealth of good photographs which supply both general inspiration and technical detail. The appendix includes a remarkable list of motion picture films on rehabilitation from Germany, England, Belgium and other European countries, Canada, India, and the United States. This book is strongly recommended to everyone concerned with physical education, rehabilitation, and the problems of the handicapped generally.

THE PSYCHOLOGY OF PERSONALITY. By *Bernard Notcutt*. Cloth. Price, \$4.75. Pp. 259. Philosophical Library, Inc., 15 East 40th Street, New York 16, 1953.

This book presents an interesting survey of the history and current status of personality study. The entertaining style and relatively easy reading level achieved by the author compensate for a coverage of subject matter which in certain areas is spotty. The book should serve well the reader with little background in personality theory and who is seeking preliminary orientation in this broad and controversial field.

The first few chapters of the book deal with main types of theories on personality. The author groups these as trait theories, environmental theories and interaction theories. Following this is a brief discussion and evaluation of technics and methods for the study of personality. A few of the more commonly accepted tests, rating scales and action methods in current use are covered. A brief chapter is devoted to developments in the area of social psychology and the study of men in groups.

Perhaps the matter of greatest importance and widest interest in the book is Chapter XI which is entitled "The Logic of Validation." In this chapter is presented a picture of the difficulties facing the investigator of human personality. This information should help scientists in other fields to understand the nature of psychological research.

In short, the book is an interesting and entertaining, although superficial, review of trends in the study of human personality. It is worthwhile reading, particularly for the scientist working in an area not directly related to psychology.

A SOURCE-BOOK OF MEDICAL TERMS. By *Edmund C. Jaeger, D.Sc.* Foreword by *Irvine H. Page, M.D.* Cloth. Price, \$5.50. Pp. 145, with illustrations by *Lloyd Mason Smith* and author. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1953.

This is a fascinating compendium about medical terms and their sources. In short, it gives "the origin and literal meaning of words both simple and compound; their application in special cases; their history; and how they happen to be spelled as they are." A publication, such as this, is important to all who work in medicine. It is published in alphabetical sequence. Numerous illustrations add to the attractiveness of the text as a whole.

HOPE AND HELP IN PARKINSON'S DISEASE. By *John C. Button, Jr., M.D.* Cloth. Price, \$4.95. Pp. 198. Vantage Press, Inc., 120 West 31st Street, New York 1, 1953.

This is an extremely well written and complete book intended for the lay person. Of historical interest is "An Essay on Shaking Palsy" by Dr. Parkinson.

This book should be placed in the hands of patients with great care. No matter how simply stated, the problems inherent in the disease might cause confusion and fear.

Medical students and physicians who wish to review the problem of Parkinsonism should find this small and compact book acceptable.

THE BIOCHEMISTRY OF THE NUCLEIC ACIDS. By *J. N. Davidson, M.D.* Cloth. Price, \$2.25. Pp. 200, with illustrations. John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, 1954.

This compendium is one of a series of monographs on biochemical subjects published in England.

The book is described in its preface as being intended to provide an elementary outline of the main features of the nucleic acids and nucleo-proteins for the benefit of students of biochemistry, of chemists who wish to know something about the biological aspects of the subject, and of biologists who wish to learn a little about the chemical aspects.

The book seems to accomplish none of these purposes too successfully. The author has obviously surveyed the literature completely and is thoroughly conversant with the subject. However, the material is neither an elementary outline nor an exhaustive monograph on the subject. For the novice it presumes too broad a knowledge and for the investigator in the related fields it is inadequate for reference.

THE SCIENCE BOOK OF WONDER DRUGS. By *Donald G. Cooley.* Cloth. Price, \$2.95. Pp. 247, with illustrations by *William Draut.* Franklin Watts, Inc., 699 Madison Ave., New York 21, 1954.

Donald G. Cooley, the editor of *Your Health*, and a competent reporter of scientific and medical matters, has written a fascinating story of the wonder drugs. This book is primarily for the layman. Scientific terms are well defined in a four page glossary, thus making the book understandable to those with a minimal background in the sciences. The author tells the story of how the cells of our own body are now known to make many of the so-called wonder drugs in the form of various hormones and enzymes. The story of the antibiotics, including their development and their actions, is excellently told so that the reader will have a much better comprehension of the place of these drugs in the treatment of the infectious diseases. Also, the author emphasizes the limitations of the newer drugs and the dangers of indiscriminate use and self-medication. The book is up to date, even including a discussion of the Salk poliomyelitis vaccine as it is being introduced for its first clinical tests. In addition to the presentation of the material on antibiotics, there are excellent chapters on cortisone and related steroid hormones and on vitamins. There is a brief chapter pointing out the approaches that researchers are taking in attempting to solve the cancer problem.

This book can be wholeheartedly recommended to the lay public for authentic, interesting and instructive reading on some of the recent developments in research in the fields of pharmacy, medicine and physiology.

ANTIBIOTICS ANNUAL. 1953-1954: PROCEEDINGS OF THE SYMPOSIUM ON ANTIBIOTICS, OCTOBER 28, 29, and 30, 1953, Washington, D. C. Chairman: *Henry Welch, Ph.D.* Edited by *Henry Welch* and *Félix Martí-Ibañez, M.D.* Cloth. Price, \$8.00. Pp. 632, with illustrations. Medical Encyclopedia, Inc., 30 E. 60th St., New York 22, 1953.

This book is a compilation of papers presented at the Symposium of Antibiotics sponsored by the U. S. Department of Health, Education and Welfare, Food and Drug Administration, Division of Antibiotics in collaboration with the *Journal of Antibiotics and Chemotherapy*. There are over 110 scientific papers dealing with the absorption, distribution, excretion, resistance, clinical effectiveness, etc., of the newer antibiotics.

Some interesting statistics serve to emphasize the importance of this subject of antibiotics. The fatality rate of pneumococci pneumonia is now less than five per cent. The rate for sub-acute bacterial endocarditis, previously one-hundred per cent, now is less

than fifty per cent. Surgical intervention for acute mastoiditis is practically a thing of the past. Primary syphilis has been markedly reduced to the point where it is hard to find cases for clinical study.

The interest and activity in this field should last for a long time to come. The earth and sea have a seemingly limitless supply of antibiotics. Researchers are now studying 50,000 known species of fungi in their quest for new miracle drugs. The question should "Chairs of Antibiotic Medicine" be created is being raised. This book is timely and very informative; it reflects the antibiotic era in medicine.

NERVE IMPULSE: TRANSACTIONS OF THE FOURTH CONFERENCE MARCH 4, 5 and 6, 1953, PRINCETON, N. J. Edited by *David Nachmansohn, M.D.* Cloth. Price, \$4.00. Pp. 224, with 54 illustrations. Sponsored by Josiah Macy, Jr., Foundation, 16 W. 46th St., New York 36, 1954.

This is a collection of papers on various basic subjects in neurology, which were discussed at this conference. The book is divided into three parts—mechanism of vision by George Wald; mechanism of hearing by Hallowell Davis, and sensory receptors by Yngve Zotterman.

This is a rather interesting group of reports dealing with the basic physiology of nerve impulse in the various different organs as specified showing their inter-relation between the composition and the chemical environment of the media in which the impulse takes place. The numerous participants exchange ideas and experiences as well as the diverse methods of investigations and discuss them thoroughly. These reports may be of very great interest to physiologists, however, they are too detailed in nature to be of any clinical value to practicing physiatrists.

PHYSIOLOGY IN DISEASES OF THE HEART AND LUNGS. By *Mark D. Altschule, M.D.* Revised edition. Cloth. Price, \$7.50. Pp. 554. Harvard University Press, Cambridge, Mass., 1954.

This critical review was first published in 1949, and was originally written for senior students at the Harvard Medical School. The revised edition brings up to date all the available physiological studies of diseases of the heart and lungs in man.

The discussion is begun with chronic cardiac decompensation because of its importance. Altschule states that previous theories to explain the origin of all the signs and symptoms of congestive failure as *directly* consequent to "forward" failure (low cardiac output) or "backward" failure (increased peripheral and pulmonary venous pressures)

are clearly inadequate. He suggests that these changes are due to a summation of the effects of submaximal or minimal changes in the multiplicity of complex but interrelated factors. The degree of change in each of these factors, and consequently their importance, varies from patient to patient. In addition, chemical changes are potent factors in the genesis of various signs and symptoms of cardiac decompensation. The chapters on pulmonary physiology and the extensive discussions on pulmonary blood flow and vasomotor reactions express the current opinions of many physiologists today. Needless to say, the bibliographies following the various chapters are quite extensive.

Considering the complexity of the task, the author has done a magnificent job in elaborating, summarizing and documenting the material. This book will not only be of interest to senior students of medicine, but also to clinicians and interns who seek an up-to-date, detailed account of the physiologist's views on cardiac and pulmonary function as they relate to clinical medicine.

ARTHRITIS AND RHEUMATISM: THE DISEASES AND THEIR TREATMENT. By *Charles LeRoy Steinberg, M.D.* Contributors: *Milton G. Bohrod, M.D.*, and others. Cloth. Price, \$10.00. Pp. 326, with 124 illustrations. Springer Publishing Company, Inc., 44 East 23rd Street, New York 10, 1954.

Here is a book with the most important information about the various rheumatic diseases. The editor has contributed several chapters and has secured the help of five other authorities, which include those on physiology, pathology, rheumatic fever, orthopedic treatment, and physical medicine and rehabilitation.

The information is straight forward, omitting controversial material. The first three chapters on the physiology, pathology, and the clinical features of the different rheumatic disorders are exceptionally good. The editor devotes four pages to the degenerative joints, which is probably the minimal amount of space for this very prevalent joint difficulty. His reference to Stecher is spelled "Stecker."

This is a good addition to the books about arthritis. The editor's tremendous experience and fundamental understanding of these diseases has produced a book which should be very valuable to the busy practitioner and student. The illustrations are well chosen, and those in color are exceptional.

THE HEPATIC CIRCULATION AND PORTAL HYPERTENSION. By *Charles G. Child, III, M.D.* In collaboration with *Ward D. O'Sullivan, M.D.*, and others. Cloth. Price, \$12.00. Pp. 444, with 132

illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5, 1954.

The application of surgery to the problem of portal hypertension has been associated with a recent rich accumulation of studies bearing on the pathogenesis and treatment of this condition. These are reviewed interpretatively, with the aim of defining their therapeutic implications.

Some of the topics are the anatomy, embryology and physiology of the portal circulation, the relation of hepatic to body water functions and the extrahepatic splanchnic circulation, with appropriate presentation of experimental and clinical evidence and therapeutic implications. Portal hypertension is approached from the standpoint of its etiology, diagnosis and treatment, with relevant personal case studies and special treatment of the problems of selection for surgical relief and the problems of surgical care. This section is of particular interest, since it is one in which the author has had wide personal experience.

The bibliography is extensive. The reviews are concisely and penetratingly expressed and the book as a whole is a useful compendium of information in this vexed and important field.

EMOTIONS AND REASON. By V. J. McGill. Cloth. Price, \$3.25. Pp. 122. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1954.

This little book, brief and to the point, brings into sharp focus the error in common opinion that emotion and reason are two diametrically opposed sides of "human nature." In our day-to-day relationships with others, we assume a dualism of emotion and reason which does not actually exist. In well chosen words, the author shows how the learning process is alike in the development of the attitudes which, in our dualistic thinking, might represent the "emotional" or the "rational."

The author presents concise accounts of the implications of the work related to a theory of emotions by such psychologists as Hull, Tolman, Hebb, Asch, and Murray. Leeper's famous *Psychological Review* article criticizing the prevalent disorganization theory of emotion is summarized and supported. There are provocative discussions of needs of emotions, and of the relation between emotions and ethics. The point is made that "the relation between emotions and cognitions appears to be an important issue, having consequences for ethics, aesthetics, and various fields of psychology."

The content of the book probably lacks general interest value for practitioners of

Physical Medicine as such, but for those physicians having parallel interests in philosophy and theoretical psychology, the book will be extremely valuable for its concise, compact, and clear treatment of emotions and reason and of the unnecessary dualism which is giving way to a functional theory of emotions.

THE BRITISH CONTRIBUTION TO MEDICINE. By Dr. Jaime Jaramillo-Arango. Foreword by Sir Arthur MacNalty, M.D. Cloth. Price, \$6.00. Pp. 220, with 45 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, Ltd., 16 and 17 Teviot Place, Edinburgh 1, 1953.

Dr. Jaramillo-Arango is a surgeon in Bogota, Colombia, and a former director of the National Faculty of Medicine of Bogota. During World War II he served as ambassador of Colombia to Great Britain. In the foreword Sir Arthur S. MacNalty states that Dr. Jaramillo-Arango desired to leave a permanent memorial of his mission to Britain and has done so in the form of this book.

The book was first written in pure Castilian prose and was primarily designed for the information of physicians and students of medicine in the Latin American countries. He also prepared an English version particularly for those directly interested in British medicine.

The author, in the first chapter, gives a general historical survey, listing hundreds of contributions to the field of medicine made by the British since the time of William Harvey. After this preliminary survey, he selected five subjects in which he felt British investigators have made outstanding contributions and he has discussed these in considerable detail. He describes the development of vaccines for typhoid and paratyphoid fevers by Sir Almroth Wright. An outstanding section of the book is devoted to the story of the discovery of penicillin and other antibiotics and the work of Sir Alexander Fleming, Sir Howard Florey and Dr. E. Chain. Besides describing the scientific work of these men he tells something of their personal life and background which adds much to this fascinating chapter on the development of medicine. The conquest of malaria, with the development of the drug Paludrine, makes an interesting chapter. The last two sections are considerably briefer than the others. One of these deals with the story of vitamins and the nutritional diseases and the other one with the work that is being done toward the conquest of cancer. Emphasis is placed on the hope for eventual medical control of cancer.

The author uses numerous quotations and descriptions from original publications. The book is illustrated with photographs of many British scientists now famous for their con-

tributions to the field of medicine. The author gives adequate credit to outstanding contributory research by men in other countries pertaining to the five fields which he discusses.

This book is primarily of interest to medical students and physicians interested in the history of medicine generally, or British medicine in particular.

SOCIAL SCIENCE IN MEDICINE. By *Leo W. Simmons* and *Harold G. Wolff*. Cloth. Price, \$3.50. Pp. 254. Russell Sage Fdn., 505 Park Avenue, New York 22, 1954.

In a wordy approach to the psychosomatic aspects of disease, this volume considers the individual in three aspects: As an organism in its physical surroundings; as a group member in his society, and as a person in his culture. The book is more philosophical than definitive and will find its place more readily in the library of the social service worker than that of the physician. A chapter on hospital practice could be recommended particularly for house staffs, since many of the adverse features of hospitalization are described and their correction discussed.

The book is an attempt to bridge the gulf between the biological and social sciences but lacks enough scientific approach to accomplish its desired effect.

FROM FISH TO PHILOSOPHER By *Homer W. Smith*. Cloth. Price, \$4.00. Pp. 264, with illustrations. Little, Brown and Company, 34 Beacon St., Boston 6, 1953.

This is a most fascinating and readable presentation of the story of evolution. The central theme of the book is the evolution of the kidney. Since it is only by the maintenance of a precisely regulated internal fluid and chemical environment that animals have been able to exist, the author thinks of the kidney as a master organ of the body. As the external environment and climate changed at the times of the great geologic revolutions, creatures that were to survive had to develop excretory mechanisms that would function in the various habitats including salt water, fresh water, dry land, deserts or combinations of these. The anatomic and physiologic mechanisms that were evolved in the various species for maintenance of a suitable internal environment are carefully described. Although this presentation emphasizes the evolution of the kidney, other important features of the physical developments in the various animal forms are described. The climax of the story is the discussion of the final evolution of consciousness as found in the mind of man with not only his ability to learn and create but, more important, with the development of the will

to learn, plus the desire and ability for artistic and philosophic expression.

The time sequence is indicated so that the reader can remain well oriented as to the geologic ages and climatic conditions in which the various important creatures developed or became extinct. Simple but helpful drawings are used to illustrate the various animal forms and their relation to possible development from other species. An excellent geologic calendar correlating time in years with the periods, eras, geologic revolutions and animal forms appears inside the front cover.

This book with its unusual approach, readable style and careful attention to scientific fact and detail should prove most interesting to anyone concerned in any way with the biologic and natural sciences.

THE CARE OF THE AGED. By *Malford W. Thewlis*, M.D. Sixth edition. Cloth. Price, \$15.00. Pp. 832, with 155 illustrations. The C. V. Mosby Co., 3207 Washington Ave., St. Louis 3, 1954.

The first edition of this work appeared thirty-five years ago. The last edition was dated 1946. Much of the book has been rewritten with the addition of several new chapters. The first part of the book is concerned with general remarks about the problems of elderly patients and the great need for physicians who will undertake their care. Another part considers the overall aspects of these patients as to anatomic, physiologic, pathologic examination and therapy. The normal process of aging is contrasted with those usually classified as senile. The largest portion of the book is devoted systematically to the changes that occur in the different organs and systems of the body.

This is a very thorough work and can be highly recommended.

ORTHOPADISCHE GYMNASTIK. By *G. Hohmann*. Paper. Price, DM 8.70. Pp. 124, with 202 illustrations. Georg Thieme Verlag, Diemershaldenstrasse 47, (14a) Stuttgart-O, Germany, 1949.

The initial impulse of the first edition of this work was a study, made by questionnaires in 1926, of the methods taught in various German schools of physical education for the giving of therapeutic exercise or corrective gymnastics in orthopedic conditions. In spite of the then existing diversity of philosophies and technics, all respondents claimed to have evidence of good results, denied ever having had results, said they never found it necessary to exclude certain types of cases, and generally got along without consultations or examinations by orthopedists. This book, now in its second edition, represents the collaboration of an orthopedist with a teacher of corrective gymnastics

in an effort to achieve a balanced synthesis.

After introductory chapters on fundamentals and a compact statement of "habits to avoid," there follow sections on the vertebral column (the round back, the flat back, lordosis, scoliosis) and the extremities (paralyses, contractures, developmental defects, circulatory disease, and trauma). The bibliography lists fifty-six German publications. There is an abundance of good photographs and diagrams, and reference to them is facilitated by an analytical register on pp. 118 to 122. The book is a desirable addition to every library of physical medicine, physical education, and orthopedic surgery.

VIII^e CONGRES INTERNATIONAL DES MALADIES RHUMATISMALES. By *I. Rappaport*. Paper. Price, \$6.25. Pp. 390, with illustrations. Medecine et Hygiene, 15, Boul. des Philosophes, Geneve, Switzerland, 1953.

Among the increasing contributions concerning the trend and progress of rheumatology, this, the first of several reports to be published relative to the scientific transactions of the 8th International Congress on Rheumatic Diseases, occupies a unique and authoritative position. In scope and content it is the initial published record of its formal assembly at Geneva, Zurich and Aix-les-Bains on October 24-28, 1953, under multilingual auspices of such distinguished representatives as to raise its transactions to an impressive contribution. The occasion was both festive and dignified, since it also celebrated the 25th anniversary of its genesis with a significant maturity that gave it special stature.

The central theme of its scientific transactions developed three dominant but clinically integrating aspects concerning recent progress in rheumatology as viewed from present orientation of its causative, therapeutic and rehabilitation studies. Within this framework valuable data were presented of the role of connective tissue (collagen metabolism) relative to its pathologic changes responsible for many of the major symptoms associated with infections of bacterial and viral entities, allergic reactions and endocrine disorders under isotope studies by Kellegren. That the complete explanation is still a partially solved problem was demonstrated by the wide interest in pathologic processes responsible for the major arthritic diseases, the role of the destructive nature of collagenous tissues, and the wasting atrophy of the supporting system that robs the rheumatoid victim of all but the remaining skin, fat and certain other cellular structures. Its more highly refined evaluations by contemporary research of new techniques—biophysical approach through X-ray diffraction, electron microscopy, histo-bio-

chemical analyses—have emphasized a new approach in biologic investigation with particular reference to hormone therapy as a means of controlling inflammation, repair and the crippling nature of the pain syndrome. Accordingly Ragan's provocative contribution demonstrated with great detail the role of cortisone as an antiphlogistic agent and its inhibiting reparative influence on cellular elements through the hypothesis of a chemotactic action of the fibroblasts and microphages.

The symposium of the role of steroid hormones for their anti-inflammatory, anti-rheumatic, anti-allergic, and "antitoxic" effects occupied a "unique and authoritative position" in the deliberation of the Congress. However, for want of space only two of the six papers may be mentioned. Reichstein discussed the main benefit of adrenocortical hormones, which will be published in a subsequent number. Hench evaluated the effects of the cortisones and corticotropins on rheumatic and articular diseases, with stress on rheumatoid arthritis. His conclusion was an affirmation of their therapeutic value, but requires additional basic research "to provide a formula for its physiologic application, and for a *paraphysiologic* or broadest interpretation as the prized target of the future." Other speakers of international reputation rounded out and added to the clarification of the problem by discussions both provocative, timely and valid.

Last though not least in importance one comes to a section of universal concern—the rehabilitation of the many victims of rheumatoid disease of which twenty-five per cent suffer from invalidism and disability of various patterns of morbidity. Between the periods of remission and relapse, an imposing army of deformed and crippled individuals are today seeking with revived hope the corrective and curative therapy under the name of Rehabilitation. Its recognition and place on the formal panel of the Congress was an asset to its scientific transaction and provided deeper appreciation of what constitutes the rehabilitation of an arthritic patient and its *modus operandi*. Represented on this panel was the collective international voice of authority whose six papers touched upon every constructive phase of occupational and vocational therapy relative to the rehabilitation and re-education of the rheumatoid patient. Seldom does any book on such a topic carry so much inspirational material in such limited space for the benefit of such unlimited number of victims.

NEUVAS REVELACIONES SOBRE EL CUERPO HUMANO Y LA VOZ. By *Agustin Godoy*. Paper. Price, 100 Ptas. Pp. 314. La Editorial Vizcaina, S.A., Bilbao, Spain, 1953.

The author of this book insists that many persons have voice disorders because today's so-called "civilization" compels them to breathe vitiated air in the home, on the street, in theaters, in factories and public buildings. Voice disorders come from consumption of improper but tasty foods, drugs and from exposure to tensions, worries and confusions of social and business life. The result has been anti-biological and anti-physiological malfunctioning, not just in the speech faculties but in every cell of the body. The natural synchronized movements of the thoraco-laryngo-pharyngeal functions are constricted and unstabilized.

Godoy deplores the speech and singing teachers' pet methods of tilting the head, opening the mouth wide, pushing the air column, and special breathing exercises. He states that if the activity of the thorax, larynx and pharynx are unified, singers' and speakers' voices will function with the greatest vigor and yet with utmost physiological efficiency. By practicing deep (natural) breathing and relaxed phonation, with an easy vibration of the vocal cords (not the false cords which have no value in phonation), the best known singers and speakers would have far better voices and the spoiled voices would be improved.

Also emphasized is the importance of the epiglottis in directing the phonated sound from the larynx against the wall of the pharynx for effecting volume and quality and against the soft and hard palates for producing "form" of the word.

The author's writing is similar to classical German in that it is so highly involved with so many phrases and offside remarks that the main point of a sentence, usually an entire paragraph, is missed. Only experienced translators could get more than the basic ideas which are immersed in philosophical and religious discussions. The important content of the book could have been presented in one-third the present length.

DAS KLAPPSCHE KRIECHVERFAHREN. By *B. Klapp*. Paper. Price, DM 11.70. Pp. 70, with 115 illustrations. Georg Thieme Verlag, Diemershaldenstrasse 47, (14a) Stuttgart-O, Germany, 1952.

This remarkable book is devoted to the creeping technic elaborated by Rudolf Klapp, who died in 1949 after a career devoted to the training of women in therapeutic exercise or physical reconditioning, at Berlin and Marburg. Without going to the extreme of overemphasis that makes a zealot or a cultist, Klapp explored especially the possibilities of various types of creeping and crawling in the correction of scoliosis; he went to unusual lengths to give the idea thorough trial and to secure the necessary facilities for enabling growing children to avoid the erect

posture for periods of weeks or months. This included one period, during 1926, when a group of children were held most strictly to the quadruped kind of locomotion and took their meals lying down. It caused a stir in the city of Potsdam whenever, on a warm afternoon, the garden gate was opened and the children, wearing knee-pads and mittens, crept in procession down the walk to the nearby swimming place.

The first part of this book gives an anatomical comparison of biped versus quadruped locomotion, classifies the forms of scoliosis, discusses the diagnosis, therapy, and prophylaxis of scoliosis, describes the possibilities in tuberculosis, fractures, and poliomyelitis, and goes into practical considerations of rooms, furniture, clothing and pads.

The second part consists of detailed instructions for special exercises and games, including the use of an arrangement of horizontal bars developed for these patients. The book is illustrated by some good anatomical diagrams and a wealth of excellent photographs. These make the book valuable even to one who cannot read the German text. The book will interest pediatricians and orthopedists, but especially deserves careful study by everyone concerned with therapeutic exercise.

CURRENT THERAPY, 1954: LATEST APPROVED METHODS OF TREATMENT FOR THE PRACTICING PHYSICIAN. Edited by *Howard F. Conn*, M.D. Consulting editors: *M. Edward Davis*, and others. Cloth. Price, \$11.00. Pp. 898. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5, 1954.

The sixth annual issue of this publication achieves its purpose of providing current methods of medical and surgical treatment for the practicing physician. Therapeutics include recommendations for the management of the patient and his disease, as well as physiotherapy, radiotherapy, isotope therapy and drug therapy. Surgical treatment is confined to indications rather than technics. The present volume contains the methods of treatment of 377 contributors selected on the basis of their experience and research in the treatment of specific diseases. The methods of treatment of more than one student of a disease are often given wherein reasonable controversy exists.

The contents are divided into sections comprising infectious, respiratory, cardiovascular, hematologic, digestive, metabolic, nutritional, endocrine, urogenital, venereal, allergic, cutaneous, nervous, locomotor, obstetric and gynecologic diseases. The disorders due to physical and chemical agents including thermal injuries and poisonings are presented. In this section a unique table of the chief toxic constituents of various

commercial products, including both drugs and household articles, is given. A final section includes a roster of drugs, tables of metric and apothecaries' weights and an index of authors and subjects.

The information is restricted to treatment and excludes diagnostic discussion. The methods of treatment are mainly conservative and express current practice. The book is a concise and complete reference of modern therapy. The binding and printing are of high quality and the double column format is a desirable feature. The therapeutic methods of physical medicine are adequately discussed with the correct omission of specific details. The toxic reactions of several drugs have not been sufficiently emphasized.

One is tempted to speculate if the publication of such a reference book represents an advance in postgraduate education. Will the acquisition of such a volume at times foster a false attitude of clinical competence? For example, does the busy general practitioner treat an elevation of blood pressure by referring to the section on hypertension and thereby achieve a sense of personal satisfaction with a task well done? Such questions are difficult for the reviewer, editor and publisher to answer.

SCIENCE AND MAN'S BEHAVIOR: THE CONTRIBUTION OF PHYLOBIOL-OGY. By *Trigant Burrow, M.D., Ph.D.* Edited by *William E. Galt, Ph.D.* Including complete text of: *The Neurosis of Man.* Cloth. Price, \$6.00. Pp. 564. with 27 illustrations. Philosophical Library, Inc., 15 E. 40th St., New York 16, 1953.

Trigant Burrow (1875-1950) was one of the original founders of the American Psychoanalytic Association. He served as its president in 1926. From 1928, as scientific director of the Lifwynn Foundation for Laboratory Research in Analytic and Social Psychiatry, he directed his attention to what he termed phylobiology ("the application of scientific method to the field of human relations"), phylopathology, and phyloanalysis.

This volume contains two books: the text of *The Neurosis of Man* and *Science and Man's Behavior*, a work outlined by Dr. Burrow before his death and completed by William E. Galt from unpublished writings and correspondence.

The Neurosis of Man is an ambitious exposition, in very specialized terminology, of a comprehensive hypothesis about human behavior. Phylopathology, rather than the neurosis of the individual, is seen as the main problem of all mankind. The disorder that psychiatry erroneously ascribes only to the mentally disturbed is basic and universal.

Through the "phyloorganismic" investigations of the Lifwynn Foundation, two conflicting systems of adaptation were found.

One, called "cotention," of early biological origin, is the natural behavior of phylic man to react with less self-reference and more objective group-orientation than does contemporary man. Such an unbiased viewpoint of the environment is compared to the scientist's approach today. But humanity "no longer" reacts with the "consistency and precision of the objective scientist." Instead, through a faux pas in development associated with the use of language and symbol, there arose the "partitive" pattern of the "I-persona" and the phylobiologically disintegrative response called "ditenition." Ditenition is characterized as "a disordered phylic process; a deflection in the physiological function of attention."

In the latter modes of behavior, everyone is preoccupied with individual interests and desires and as a result, humanity is suffering from a phylopathology, to which traditional psychiatric practice and group therapies are irrelevant. The disorder is spoken of at times as arising in the interrelational sphere and at other times as "residing within the tissues of phylic man."

It was Dr. Burrow's belief that beneath the wishfully prejudiced behavior of "ditenition," the latent phylointegrative "cotention" could be reactivated and that this change must take place if "insanity, crime, conflict, neurosis, and war are to be remedied."

In *Science and Man's Behavior*, excerpts from Dr. Burrow's correspondence with a number of prominent scientists are quoted and discussed. Respect for the author's earnest social concern and humanitarian objectives is evident, but the questions raised reveal doubts about such matters as these: The concept of the neurosis of man as a species; the implication that individual man can be equated to racial man, psychosocially speaking; the fact that contributions from antecedent and contemporary workers in related fields are overlooked; the relation of seemingly contradictory statements that neurotic disorders are neural and that they are social, and the sociopolitical implications of an ultimate racial non-neurotic norm of cotentive cooperation.

The highly personalized nature of the thesis and the diffuseness of its exposition make it doubtful that this book would be of more than passing interest to psychiatrists or those interested in psychosomatic medicine.

CRITERIA FOR RETIREMENT: A REPORT OF A NATIONAL CONFERENCE ON RETIREMENT OF OLDER WORKERS. Editor: *Geneva Mathiasen*, Secretary, National Committee on Aging. Held at Arden House, Harriman Campus of Columbia University, January 24-26, 1952. Under sponsorship of McGregor Fund and National Committee on Aging of National Social Welfare Assembly. Cloth. Price,

\$3.50. Pp. 233. G. P. Putnam's Sons, 210 Madison Ave., New York 16, 1953.

The progress of medical science in increasing the span of life has created a major social problem—an aging population. In this volume, members of the medical profession with the assistance of allied professions and agencies have attempted to explore the problems of retirement resulting from the fact that many employees in vigorous health are finding it impossible in most industries to continue beyond a fixed retirement age.

In January, 1952, a group of experts held a conference at Columbia University under the sponsorship of the McGregor Fund and the National Committee on Aging of the National Social Welfare Assembly. At this conference, such topics as the social needs of an aging population, assets and liabilities of older workers, practical ways of utilizing older workers, substitutes for arbitrary retirement, and aging and the ability to work were discussed. The deliberations are described in this highly informative book.

In the introduction, G. W. Hobbs stated that "maintaining income is one of the major difficulties encountered by older people and employment is the best source of income for those who are able and willing to work." Mr. Hobbs concluded that "resolving problems arising from an aging population is of vital consequence to our future national economy."

It is discouraging to note the observation that pension systems provided by a few trade unions and by special groups such as teachers and by incomes from private annuities and investments provide income for probably less than ten per cent of older persons. It is surprising to find such a small percentage of our people providing for their own retirement. Dr. Theodore Klumpp summed up the findings of those who participated in the conference by saying, "it appears to me that it is the predominant sentiment of this conference that chronological age, as the sole basis for retirement, should now be abandoned by business, and the largest employers of them all—government."

This book is the most nearly complete one dealing with problems of retirement of older persons, which has yet come to the attention of the reviewer. It is important reading for all executives in industrial management and in labor management as well as for social service workers, physicians and public health workers. It is highly recommended.

ENDOGENOUS ENDOCRINOTHERAPY. INCLUDING THE CAUSAL CURE OF CANCER. COMPENDIUM. By Dr. Jules Samuels. Revised fourth edition. Fabrikoid. Price, f 37. Pp. 600. N. V. Cycloscop, Amsterdam, 1954.

A realistic evaluation of the fourth edition of Samuels' opus calls for careful consideration in order to avoid the pitfalls of immature conclusions arising from an impressive array of acceptable data as well as some highly attractive opinions still in their formative state of further verification. The content of this volume is a challenging call to one's critical attention because it incorporates a rich and authoritative data based on laboratory evidence of the overall curative nature of hormones in support of a provocative thesis for the clinical superiority of short wave minimal dosage applicable in major diseases in which its hormone balance is a disturbing factor. Samuels, despite many years of labor in this field, his trenchant invitations to the medical world to his open clinic and his voluminous publications, still finds his therapeutic approach isolated between the horns of understandable skepticism of traditional medical practice and the credulity of enthusiastic panacea seekers. This in an era when endocrinology is accepted as one of the verities of progressive medicine. His views still remain suspect mainly for the simple reason of the great lag in time between discovery and recognition, during which the realities of objective experience must be stripped of its glittering theories to give it scientific validity.

Essentially, the text under consideration is a condensation from an original but unpublished five volume opus in German, in the form of a "Compendium," revised in an upward scale of substance and clarity. It explains the fundamentals of hormone function and influence as a regulating factor in normal and pathologic conditions, as demonstrated by a stream of well documented contemporary literature relative to its nature and endocrine action. Unquestionably these regulators of chemical and functional states are now admitted to play an important role in the endogenous control of specific metabolic processes. Well known is the hormone action of insulin in the metabolism of carbohydrates; the response of the thyroid hormone as an antiphlogistic, oxydative and temperature coordinator; the parathyroids as a calcium regulator; the increasing proof of the therapeutic value of the gonadotropin segment in the rheumatoid maladies, and the growing recognition of its therapeutic response in certain types of malignancies.

Samuels' contributions have been that of an industrious pioneer who not only has attempted to correlate the balancing nature and regulatory action of endocrine function, but the introduction and demonstration of a multiplicity of advanced interpretations and discoveries so provocative as to warrant our serious consideration of the character of his therapeutic and diagnostic approach. Gradually other European colleagues of substantial reputation have confirmed under

rigid laboratory supervision the objective diagnostic value of hormone regulation by minimal short wave application to various segments of the body. In the space of some seventeen years of productive observations dedicated to the treatment of benign and malignant maladies by a spectroscopic method of blood analyses in vivo and special short wave technics, European medicine is now opening its doors and publishing facilities to Samuels in order to judge for itself whether he has the gift of vision or is just another visionary. Whatever the adjudication of history, his self-sacrificing adventure has been in a noble cause, as exemplified by this provocative exposition with its challenging views and content.

The officers of the American Congress and American Society of Physical Medicine and Rehabilitation and the Editorial Board of the ARCHIVES extend to all members, readers, advertisers and friends, their very best wishes for a Merry Christmas and a Happy New Year.

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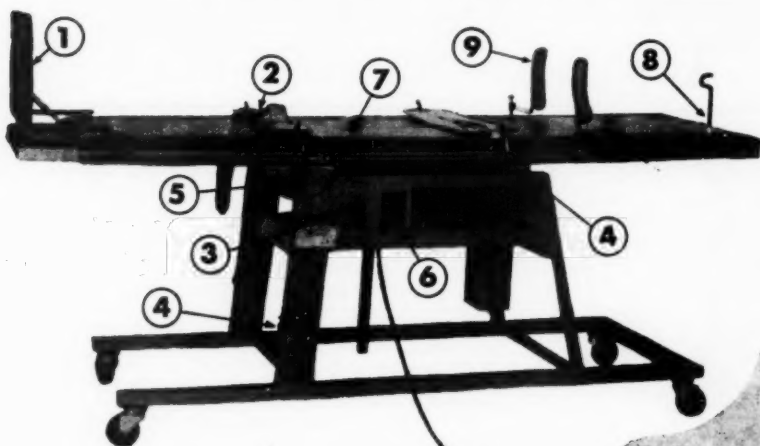
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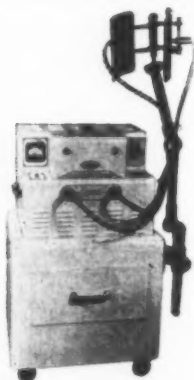
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4. The essay must not have been published previously.
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6. Manuscripts must not exceed 3000 words (exclusive of headings, references, legends for cuts, tables, etc.), and the number of words should be stated on the title page. An original and one carbon copy of the manuscript must be submitted.
7. The winner shall receive a cash award of \$200, a gold medal properly engraved, a certificate of award and an invitation to present the contribution at the 33rd Annual Session of the American Congress of Physical Medicine and Rehabilitation at the Hotel Statler, Detroit, August 28-September 2, 1955.
8. The winner shall be determined by the Prize Lecture Committee composed of four members of the American Congress of Physical Medicine and Rehabilitation.
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 λ = wavelength

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$$f = \frac{v}{\lambda}$$

$$\lambda = \frac{v}{f}$$

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